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NATIONAL DAM SAFETY PROGRAM. MECHANICVILLE RESERVOIR DAM (INVEN--ETC(U)
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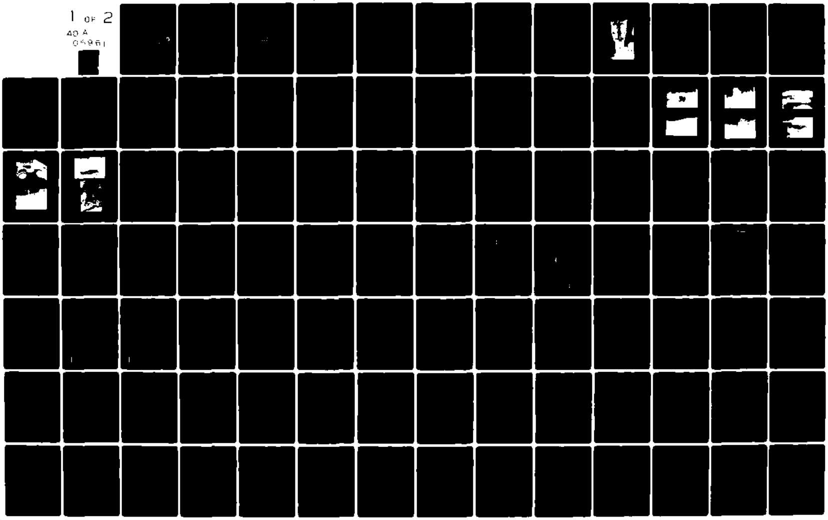

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LEVEL II

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to life or property. However, the dam has some deficiencies which need to be evaluated and remedied.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Using the Corps of Engineers' Screening Criteria for initial review of spillway adequacy, it has been determined that the dam would be overtopped by all storms exceeding 20% of the Probable Maximum Flood (PMF) inflows. Since failure of the dam would increase the hazard to downstream residents, the spillway capacity is adjudged as seriously inadequate and the dam is assessed as "unsafe, non-emergency".

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

Due to the severity of the spillway inadequacy, it is recommended that the stop logs on the drop inlet structure should be removed to lower the reservoir level, and to provide additional spillway capacity. The stop logs should not be replaced until appropriate mitigating measures have been taken. A system for providing around-the-clock surveillance of the dam during periods of unusually heavy precipitation should be developed and implemented. An emergency action plan for the notification and evacuation of downstream residents should also be developed and implemented.

It is recommended that within 3 months of the date of notification of the owner, a detailed hydrologic/hydraulic investigation of the structure should be commenced. Mitigating measures deemed necessary as a result of these investigations should be completed within 18 months. Stop logs should not be replaced until appropriate mitigating measures have been completed.

Inspection of the three outlet pipes revealed varying degrees of differential settlement along each of the pipes. Such settlement indicates that the pipes may have actually separated at the joints. Investigations of the differential settlement of the three pipes, should also be commenced within 3 months. Any serious problems discovered should be corrected within 12 months of the date of notification of the owner.

UPPER HUDSON RIVER BASIN

MECHANICVILLE RESERVOIR DAM

SARATOGA COUNTY, NEW YORK
INVENTORY NO. N.Y. 1061

PHASE I INSPECTION REPORT
6 **NATIONAL DAM SAFETY PROGRAM.**

Mechanicville Reservoir Dam (Inventory Number N.Y. 1061). Upper Hudson River Basin. Saratoga County, New York. Phase 1 Inspection Report.

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NEW YORK DISTRICT CORPS OF ENGINEERS

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PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
MECHANICVILLE RESERVOIR DAM
I.D. NO. NY-1061
#225A-142 UPPER HUDSON RIVER BASIN
SARATOGA COUNTY, NEW YORK

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APPENDIX

Phase I Inspection Report
National Dam Safety Program

Name of Dam:	Mechanicville Reservoir Dam (I.D. No. NY-1061)
State Located:	New York
County:	Saratoga
Watershed	Upper Hudson River Basin
Stream:	Plum Brook
Date of Inspection:	April 2, 1981

ASSESSMENT

Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to life or property. However, the dam has some deficiencies which need to be evaluated and remedied.

Using the Corps of Engineers' Screening Criteria for initial review of spillway adequacy, it has been determined that the dam would be overtopped by all storms exceeding 20% of the Probable Maximum Flood (PMF) inflows. Since failure of the dam would increase the hazard to downstream residents, the spillway capacity is adjudged as seriously inadequate and the dam is assessed as "unsafe, non-emergency".

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

Due to the severity of the spillway inadequacy, it is recommended that the stop logs on the drop inlet structure should be removed to lower the reservoir level, and to provide additional spillway capacity. The stop logs should not be replaced until appropriate mitigating measures have been taken. A system for providing around-the-clock surveillance of the dam during periods of unusually heavy precipitation should be developed and implemented. An emergency action plan for the notification and evacuation of downstream residents should also be developed and implemented.

It is recommended that within 3 months of the date of notification of the owner, a detailed hydrologic/hydraulic investigation of the structure should be commenced. Mitigating measures deemed necessary as a result of these investigations should be completed within 18 months. Stop logs should not be replaced until appropriate mitigating measures have been completed.

Inspection of the three outlet pipes revealed varying degrees of differential settlement along each of the pipes. Such settlement indicates that the pipes may have actually separated at the joints. Investigations of the differential settlement of the three pipes, should also be commenced within 3 months. Any serious problems discovered should be corrected within 12 months of the date of notification of the owner.

Several other deficiencies were noted on this structure. The worst of these deficiencies were trees and brush growing on the entire embankment. All trees and brush should be cut and removed as soon as possible to permit a detailed inspection of the embankment. The remainder of the deficiencies should be corrected within 12 months of the date of notification.

Among the actions required are the following:

1. Establishing a good grass cover on the embankment slopes;
2. Treating the soft and wet areas at the base of the downstream slope;
3. Protecting the embankment toe from erosion caused by Plum Brook main stem flow;
4. Repairing concrete on the drop inlet structure;
5. Correcting deficiencies on the laid-up stone headwall at the outlet of the spillway pipes.

George Koch RW

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Chief, Dam Safety Section
New York State Department
of Environmental Conservation
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Approved by:

Col. W. M. Smith, Jr.
New York District Engineer

Date: 26 Aug 81

OVERVIEW
MECHANICVILLE RESERVOIR DAM
I.D. No. NY-1061

Phase I Inspection Report
National Dam Safety Program
Mechanicville Reservoir Dam
I.D. No. NY-1061
#225A-142 Upper Hudson River Basin
Saratoga County, New York

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority
The Phase I inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection
This inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life and property, and to recommend remedial measures where required.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam

The Mechanicville Reservoir Dam is an earth dam having a drop inlet spillway containing three discharge conduits plus a smaller cast-iron standpipe leading to a water supply conduit.

The embankment is 380 feet long and about 30 feet high. T he crest of the embankment is about 20 feet wide. The slopes of the embankment are somewhat variable but generally, the upstream slope is 1 vertical on 2 horizontal and the downstream slope is 1 vertical on 2.5 to 3 horizontal. There is small stone rip-rap on the lower portion of the upstream slope.

The spillway entrance consists of a concrete and masonry drop inlet structure covered with a wooden roof. The structure is square with each side about 15 feet long. There is a masonry post on each corner which supports the roof structure. Along each side are steel pins, 12 inches on center, that support 26 inches of wood stop logs. Within the structure, 30 inch diameter reinforced concrete pipe (RCP) sections form vertical risersleading to the outlet pipes. There are three risers, each consisting of three RCP sections with a vertical drop of 9 feet. The three outlet pipes are 30" diameter cast iron pipes laid in 12 foot long sections. There is a laid-up stone headwall at the outlet end of the pipes.

The outlet works standpipe consists of 16 inch cast iron pipe sections of

varying length. It has three valves which control flow into ports at three different elevations. The standpipe then leads to a 16 inch supply main. There are two brick manholes at the downstream toe of the dam, near the spillway outlet pipes. One of these contains a valve off the 16 inch supply line leading to a 16 inch blow-off line. The other manhole contains a valve regulating flow in the supply line.

b. Location

This dam is located off George Thompson Road in the Town of Stillwater. The reservoir is approximately 1.25 miles north of the hamlet of Willow Glen on New York State Route 67. The dam is approximately 2.5 miles northwest of the City of Mechanicville.

c. Size Classification

The dam is 30 feet high and has a storage capacity of 322 acre-feet. Therefore, the dam is in the small size category as defined by the "Recommended Guidelines for the Safety Inspection of Dams."

d. Hazard Classification

The dam is classified as "high" hazard due to the presence of approximately 10-15 homes in the hamlet of Willow Glen about 1.25 miles south of the dam.

e. Ownership

The dam is owned by the City of Mechanicville. It is under the jurisdiction of the city's Department of Public Works. Mr. Michael Ennello is the Commissioner of Public Works. His office is at the city garage on South Central Avenue, Mechanicville, New York 12118 and his phone number is (518) 664-7171. Mr. Vincent Barber is the Water Superintendent for the city. His phone number at the Water Treatment Plant is (518) 664-3751.

f. Purpose of Dam

This dam is used as a water supply for the City of Mechanicville. A 16 inch supply main leads from the dam to the water treatment plant in Willow Glen. This line is approximately 6100 feet long.

g. Design and Construction History

This dam was constructed in 1892. Modifications to the structure were made in 1927. At that time, a stop log structure was constructed making it possible to raise the reservoir level by about 3 feet.

h. Normal Operating Procedures

Water is withdrawn from the reservoir as required by the City. This reservoir is used as a secondary supply system. The primary source of supply is a smaller reservoir approximately one mile downstream of this dam. Therefore, the water from the Mechanicville Reservoir is used on an irregular basis, primarily during the winter months.

1.3 PERTINENT DATA

a. Drainage Area (sq.mi.)	2.19
b. Discharge at Dam	(cfs)
Spillway (no stop logs) - water @ top dam	343

c. Elevation (USGS Datum)

Top of Dam	268.5
Normal Pool	263

d. Reservoir - Surface Area (acres)

Top of Dam	35
Normal Pool	22

e. Storage Capacity (acre-feet)

Top of Dam	322
Normal Pool	201

f. Dam

Type - Earth embankment with small rip rap on upstream face.

Embankment length (ft)	380
Slopes (V:H) Upstream (approximate)	1 on 2
Downstream (varies)	1 on 2.5 to 1 on 3
Crest width (ft)	20

g. Spillway - Drop Inlet

Type: Square masonry drop inlet structure with wooden roof; stop logs on each face; three 30 inch diameter risers leading to three 30 inch diameter pipes form outlet.

Length of Weir (ft)	49

h. Outlet Works - Standpipe

Type - 16 inch cast iron pipe; three valves controlling three inlet ports at different elevations, leads to 16 inch supply main; two valves at downstream toe; one leading to 16 inch blow-off line and one on supply line.

SECTION 2: ENGINEERING DATA

2.1 GEOTECHNICAL DATA

a. Geology

The Mechanicville Reservoir Dam is located in the Hudson Valley physiographic province of New York State. Bedrock in the vicinity of the dam dates from the Ordovician Era (approximately 500 million years ago). Limestone, dolomite, shale and sandstone are the predominant types of rock in this area. A review of the "Brittle Structures Map of the State of New York" indicates there are no faults in the immediate vicinity of the dam.

Surficial soils in the area consist of glacial drift from the Wisconsin glaciation.

b. Subsurface Investigations

No records of any subsurface investigations performed in the vicinity of this structure could be located.

2.2 DESIGN RECORDS

There were no design records available.

2.3 CONSTRUCTION RECORDS

There were no construction records available for this structure. The dam was constructed in 1892. Modifications to the structure were reportedly completed in 1927.

The only information which was available was two drawings which showed plan views of the reservoir. One of these was dated 1892 and the other was dated 1924. The 1892 plan indicated that there was an auxiliary spillway channel at the left end of the dam, but this channel does not presently exist. It is not known whether it was ever built.

2.4 OPERATION RECORDS

No operation records are maintained on this structure.

2.5 EVALUATION OF DATA

Information used for the preparation of this report was obtained from the Department of Environmental Conservation files, from the City of Mechanicville files, and from measurements made at the time of the inspection. The analysis performed for this report were based primarily on field measurements taken during the visual inspection.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General
Visual inspection of the Mechanicville Reservoir Dam was conducted on April 2, 1981. The weather was overcast with temperatures in the low fifties. The water surface at the time of inspection was 3 inches below the top of the stop logs on the spillway drop inlet (3.5 feet below the top of dam).

b. Embankment
Visual inspection of the embankment was hampered by trees and brush growing on both slopes and the crest. In addition to the live vegetation, there were a number of fallen trees on the downstream slope. These were reported to have been cut 10 to 15 years ago. Stumps from these trees still remain on both slopes. The resulting piles of brush made a detailed inspection impossible.

In spite of these conditions,several deficiencies were observed on this structure. The crest of the embankment was fairly level, although there were some low spots. A motor bike path had been worn along the entire length of the crest.

Several deficiencies were noted on the downstream slope. There was a soft area near the toe of the slope. This area extended for a distance approximately equal to the middle third of the embankment and was located in the middle portion of the embankment. There was one rectangular area near the right end(looking downstream) of the soft area where standing water was observed. However, there were no points of concentrated seepage. Another deficiency noted was that some bent trees were noted on the downstream slope. This could be an indication of movement of the slope. No cracks, sloughs or other indications of recent movements were noted, but the trees and brush prevented a detailed inspection of this area.

c. Spillway
The masonry drop inlet structure was in fair condition. There was some cracked and broken concrete on the interior of the structure (near the three wells leading to the outlet conduits). The stop logs on each side of the structure were placed in the fall of 1980 and were in good condition. There was minor leakage between the logs and some leakage under the logs as as well. Some of the pins supporting these stop logs were bent. The timber roof on this drop inlet was in poor condition. Many of the roof boards were rotted or missing. The corrugated metal sheets which had covered the left side of the roof were missing. Those on the right side were bent up on the corners, although they were still in place. The vertical RCP riser leading to the outlet pipes was in satisfactory condition.

The cast iron outlet pipes at the outlet headwall have relatively the same invert elevation. However, looking back up into the pipe sections revealed varying degrees of differential settlement along each of the pipe inverts. The major changes in slope seemed to occur at pipe joints, with the most serious irregularities found inside pipe #2 (Appendix C; drawing "Spillway Outlet Structure"). Such settlement indicates that the pipes may have actually separated at the joints.

The laid-up stone headwall for the three outlet pipes was in need of repair. There were stones missing from the wall in several spots. The worst of these was a void approximately 1 foot deep by 2 feet high between the second and third outlet pipes (see photos). There was evidence of scour behind the right end of the headwall.

d. Standpipe

The standpipe appeared to be in satisfactory condition. There were two support cables leading from the standpipe and buried in the ground at either end of the dam. The three valves on the standpipe remain open at all times, but are reportedly operational.

A 16 inch supply main leads from the base of the standpipe to two brick manholes at the downstream toe of the dam. The concrete facing on the two manholes was somewhat deteriorated. A 16 inch blow-off pipe which comes out of one of the manholes appeared to be in satisfactory condition. There were several inches of sediment in the invert of this pipe. The other manhole contains a valve controlling flow in the supply line leading to the treatment plant. Both of these valves were reported to be operational.

e. Reservoir

There were no signs of instability in the reservoir area. The area surrounding the reservoir was forested up to the water surface. The slopes rising from the reservoir were relatively steep, especially along the western side.

f. Downstream Channel

The outlet channel was in satisfactory condition. The Plum Brook mainstem flows near the downstream toe of the embankment at the right end of the dam. The brook takes a right angle bend away from the dam near the midpoint of the embankment. There was some evidence of scour on the outside of the bend. The scoured area was beginning to infringe on the toe of the embankment.

3.2 EVALUATION OF OBSERVATIONS

Visual inspection revealed several deficiencies on this structure. The following items were noted:

1. Trees and brush growing on the entire embankment, making a detailed inspection impossible.
2. A soft area at the downstream toe of the slope, and, at one end of this soft area, a rectangular wet area.
3. Differential settlement of the three spillway pipes at their outlet.
4. Bent trees on the downstream slope which are possible indications of movement of the slope.
5. Missing stones and other deficiencies on the laid-up stone headwall at the outlet of the spillway pipes.
6. Deterioration of the timber roof on the drop inlet structure.
7. Scour from Plum Brook which was impinging on the downstream toe of the embankment.
8. A motor bike path which had been worn into the crest.
9. Minor cracking and deterioration of concrete on the drop inlet structure.
10. Minor deterioration on the two manholes on the 16 inch supply line.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

There are no prescribed operating procedures for this dam. This reservoir is used as a back-up water supply for the City of Mechanicville. Water is withdrawn from the reservoir when required.

4.2 MAINTENANCE OF DAM

There is no established maintenance plan for this dam.

4.3 WARNING SYSTEM IN EFFECT

No apparent warning system for evacuation of downstream resident is present.

4.4 EVALUATION

The operation of this reservoir is satisfactory. The maintenance of the dam has been unsatisfactory. Increased maintenance efforts are required to correct deficiencies noted in Section 3.

SECTION 5: HYDROLOGIC/HYDRAULIC

5.1 DRAINAGE AREA CHARACTERISTICS

The delineation of the contributing watershed to this dam is indicated on the map titled "Drainage Area Map - Mechanicville Reservoir Dam" (Appendix C). The irregular but somewhat rectangular-shaped, north-south oriented watershed of some 2.19 square miles (1400 acres) is comprised of relatively undeveloped lands consisting of primarily forest and some open fields. The forest, within the watershed, is part of the larger 6800 acre Luther Forest area. Bank slopes along the primary drainage paths are moderate to steep due to erosion and downcutting of the surficial sandy soils. Slopes beyond the banks of the drainageways are moderate to flat. Elevations along the hills forming the watershed divide range from 70 to 140 feet above the reservoir. Adjacent and partly within the upper reaches of the watershed is a sizeable wetland located east of Black Pond. There are no other significant size bodies of water nor are there any known flow diversions either into or out of the watershed.

5.2 ANALYSIS CRITERIA

No hydrologic/hydraulic information was available regarding the original design for this dam. Therefore, the analysis of the floodwater retarding capability of the dam was performed using the Corps of Engineers HEC-1 computer program, Dam Safety version. The computer program develops an inflow hydrograph using the "Snyder Unit Hydrograph" method and then reservoir routs the hydrograph using the "Modified Puls" flood routing procedure. The spillway design flood selected for analysis was the Probable Maximum Flood (PMF), in accordance with the Recommended Guidelines of the U.S. Army Corps of Engineers. The PMF event is that hypothetical storm event resulting from the most critical combination of rainfall, minimum soil retention, and direct runoff to a specific site that is considered reasonably possible for a particular watershed. Precipitation values used in the analysis were obtained from the Weather Bureau publication HMR 33. Soil retention rates selected were an initial loss of 1.0 inches and a constant loss of 0.2 inches per hour. These rates were used because of the highly permeable soils located throughout the entire watershed.

5.3 SPILLWAY CAPACITY

The single, square, drop inlet spillway has a concrete crest and three, 30 inch diameter, vertical concrete risers leading to the outlet pipes. Entirely surrounding the four-sided crest are 26 inch high stoplogs. Some additional outflows are possible via the vertical standpipe. However, for the floodwater analysis, the discharges through the standpipe outlet works were not included. The single spillway was analyzed with no stoplogs in place. For low head condition, the spillway discharges were computed using a weir flow discharge coefficient, C, of 3.2. As reservoir levels rise, discharge becomes limited by the capacity of the three outlet pipe conduits. The computed discharge capacity of the spillway without stoplogs in-place is 343 cfs.

The flood analysis performed for this dam indicates that the spillway does not have sufficient capacity for discharging one-half the PMF. For this storm event, the peak inflow and the peak outflow is 1587 cfs. The PMF peak inflow and peak outflow is 3171 cfs.

5.4 RESERVOIR CAPACITY

The normal water surface varies because of water supply withdrawals which are dependent upon consumer demand. Maximum normal pool is at or near the top of the stoplogs,(elevation 265.2) . Water supply withdrawals via the standpipe openings may lower the pool to about the reservoir bottom, providing the outflow capacity exceeds the inflows from watershed runoff.

The impounded capacity at the spillway crest (elevation 263-USGS) is 201 acre-feet. Surcharge storage capacity to the top-of-dam (elev. 268.5) adds 121 acre-feet which is equivalent to a direct runoff depth of 1.04 inches over the watershed. The total storage capacity is 322 acre-feet.

5.5 FLOODS OF RECORD

The date of occurrence of the maximum flood at the dam site is not known.

5.6 OVERTOPPING POTENTIAL

Analyses using the PMF and one-half the PMF storm events indicates that the spillway does not have sufficient discharge capacity. The computed depths of overtopping for these two events are 1.99 feet and 1.15 feet respectively. All storm events exceeding 20% of the PMF will result in the dam being overtopped.

5.7 EVALUATION

The spillway capacity is inadequate for the peak outflow from one-half the PMF. Overtopping of the earth embankment is likely to cause dam failure. Therefore, a dam-break analysis, assuming a breaching of the dam, was performed. The analysis indicates that water surface levels downstream of the dam near the hamlet of Willow Glen could reach depths which would pose a significant danger to residents. That is, dam failure resulting from overtopping would significantly increase the hazard to loss of life downstream from the dam from that which would exist just before an overtopping failure. Therefore, the spillway is adjudged as "seriously inadequate" and the dam is assessed as "unsafe, non-emergency".

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

Visual observations of the structure were limited by the trees and brush growing on the dam. However, there were several deficiencies noted. A soft area was noted near the downstream toe which extended along the middle third of the embankment. There was a rectangular wet area near the right end of this soft section. Standing water was observed in this area, but there were no points of concentrated seepage. Some bent trees were noted on the downstream slope. While no cracks or slough were noted, these trees could be an indication of slope movements.

b. Design and Construction Data

No information was available concerning the original design or construction of this dam. One plan sheet from 1892 was available, but it indicated that an auxiliary spillway channel was to be constructed at the left end of the dam. No such spillway channel presently exists.

c. Seismic Stability

This dam is located in Seismic Zone 2. No seismic stability analysis was performed on this structure.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety
The Phase I inspection of the Mechanicville Reservoir Dam revealed that the spillway is seriously inadequate and outflows from all storms exceeding 20% of the Probable Maximum Flood would overtop the dam. Since an overtopping induced failure would significantly increase the hazard to downstream residents, the dam is assessed as unsafe-non-emergency.

In addition to the spillway inadequacy, other deficiencies were noted which affect the safety of this structure. Among the deficiencies observed were differential settlement of the three spillway pipes at their outlet end, a soft area at the downstream toe of the slope, scour from Plum Brook impinging on the downstream toe of the embankment and bent trees on the downstream slope indicating possible slope movements.

b. Adequacy of Information
The information which was available for the preparation of this report was extremely limited. Sketches developed from field measurements taken at the time of the inspection were used to determine the discharge capacity of the spillway.

c. Need for Additional Investigations
Since the spillway has been assessed as seriously inadequate, additional hydrologic/hydraulic investigations are required to more accurately determine the site specific characteristics of the watershed. Analysis will then be required to determine appropriate mitigating measures in response to the seriously inadequate spillway capacity.

Also, the extent of the differential settlement within the spillway pipes should be determined and monitored. This investigation should be conducted in conjunction with determining any movement of the downstream slope.

d. Urgency
The additional hydrologic/hydraulic investigations which are needed should be commenced within 3 months of the date of notification of the owner. and the mitigating measures deemed necessary as a result of the investigation should be completed within 18 months of the date of notification. The investigations of the differential settlement problem as well as the possible movement of the downstream slope should also be commenced within 3 months of the date of notification. Any serious problems discovered and/or any worsening of either condition should receive prompt remedial action. All other deficiencies should be corrected within 12 months of the date of notification.

7.2 RECOMMENDED MEASURES

a. Due to the serious deficiency in spillway capacity, remove the stop logs and lower the reservoir level pending the results of the detailed hydrologic/hydraulic analysis.

b. After the hydrologic/hydraulic investigation has been completed, mitigating measures dealing with the seriously inadequate spillway capacity should be undertaken.

c. As a result of the investigation relating to the differential settlement of the spillway outlet pipes, and possible movement of the downstream embankment slope, remedial measures should be undertaken.

d. Trees and brush growing on the embankment should be cut and the slope cleared as soon as possible. Upon completion of the clearing, a detailed inspection of the embankment should be conducted.

e. After the embankment is cleared, a good grass cover should be established to provide erosion protection.

f. The soft and wet areas near the downstream toe should be treated in an appropriate manner to permit the water to drain without disturbing the soil particles which form the slope.

g. Actions should be taken which will protect the toe of the embankment from scour caused by Plum Brook.

h. The cracking and deterioration of concrete on the drop inlet structure should be repaired.

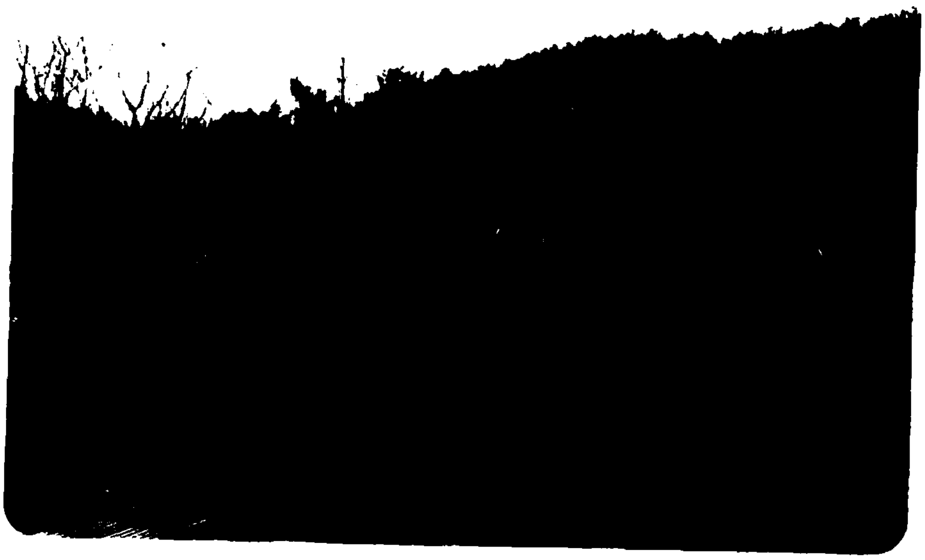
i. Missing stones and other deficiencies on the laid-up stone headwall at the outlet of the principal spillway pipes should be repaired.

j. An emergency action plan for the notification of downstream residents should be developed and implemented.

APPENDIX A

PHOTOGRAPHS

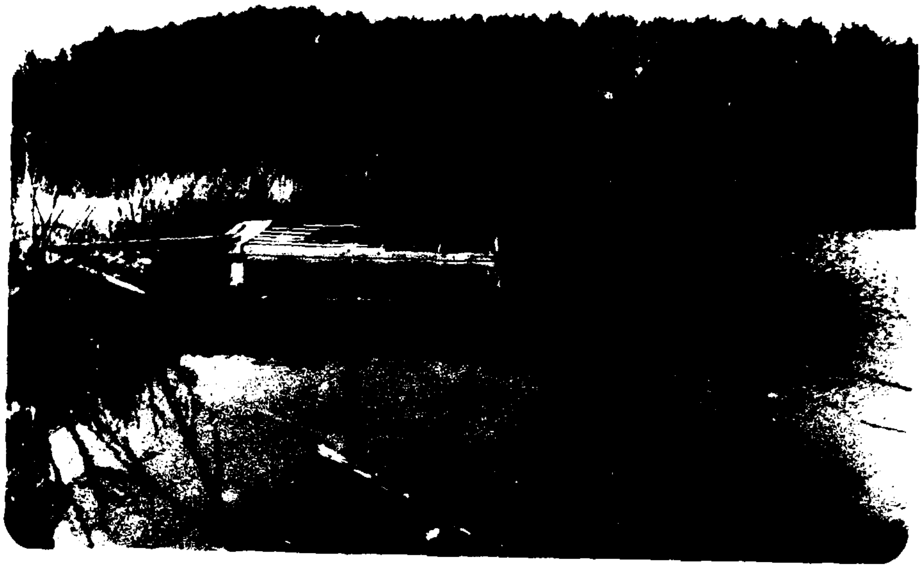
Embankment Crest; Note Brush Growing on Dam



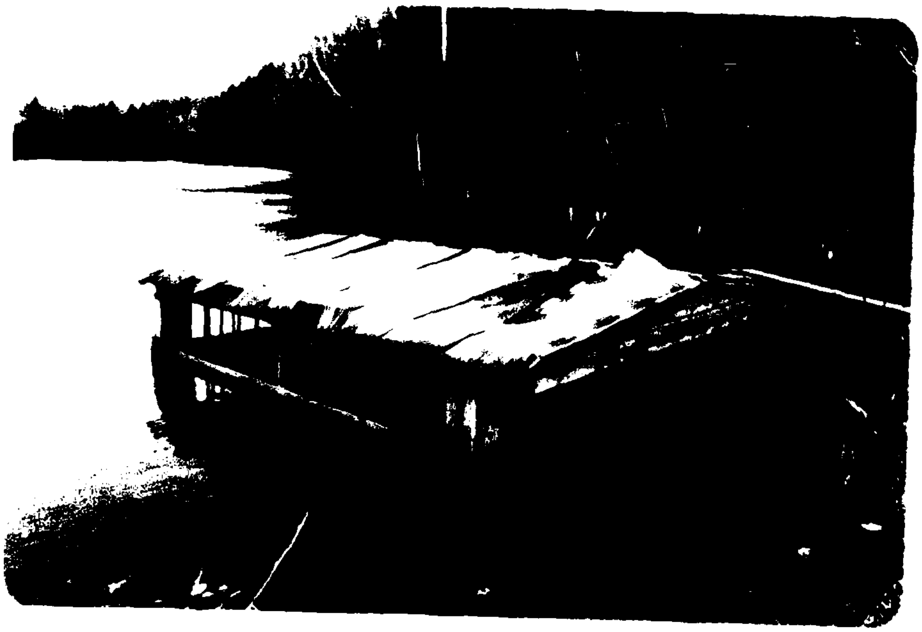
Upstream Slope of the Embankment

Downstream Slope of Embankment; Note
Trees and Brush Growing on Slope

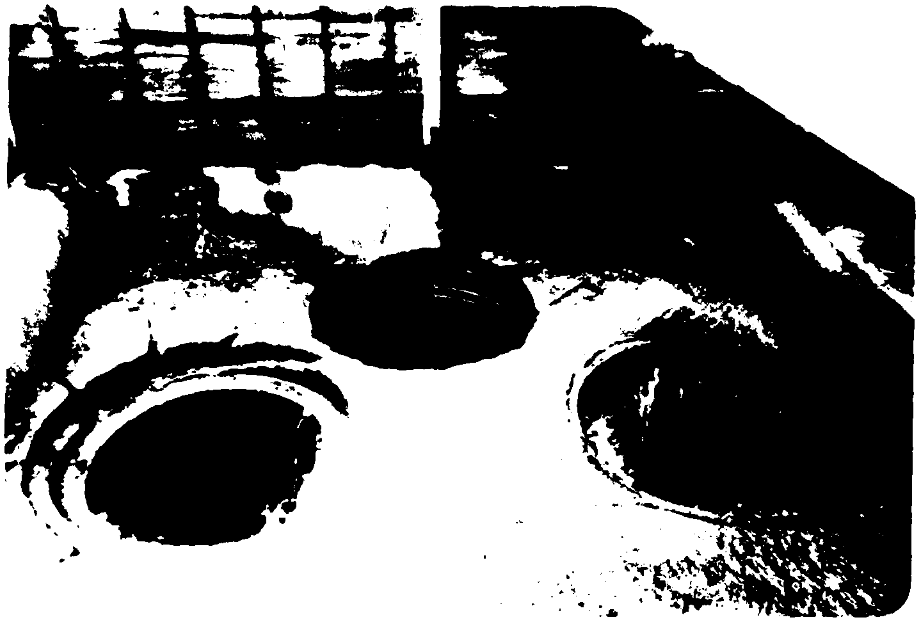
Downstream Slope; Note Bent Trees indicating
Possible Past Movement of Slope



Concrete Drop Inlet Structure with
Timber Roof; Cast Iron Standpipe in Background



Drop Inlet Structure; Note Stop Logs in Place
on all Sides.



Three Wells within Drop Inlet Structure
Leading to Spillway Outlet Pipes; Note
Cracked Concrete

Spillway Outlet Pipes and Manholes
Containing Valves on 16 inch Supply Main

Stream Which Flows Near Downstream Toe of Embankment

Wet Area at Downstream Toe of the Embankment

APPENDIX B

VISUAL INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam MECHANICVILLE RESERVOIR DAM

Fed. I.D. # NY-1061 DEC Dam No. 225A-142

River Basin UPPER HUDSON

Location: Town STILLWATER County SARATOGA

Stream Name

Tributary of PLUM BROOK

Latitude (N) 42° 56.3' Longitude (W) 73° 43.9'

Type of Dam EARTH EMBANKMENT

Hazard Category HIGH

Date(s) of Inspection 4/2/81

Weather Conditions 50° OVERCAST

Reservoir Level at Time of Inspection 3.5' BELOW TOP OF DAM

b. Inspection Personnel R. WARRENDER W. LYNICK

c. Persons Contacted (Including Address & Phone No.)

VINCE BARBER, WATER SUPERINTENDENT (518) 664-3751

MICHAEL ENNELLO, COMMISSIONER OF PUBLIC WORKS

(518) 664-7171

d. History:

Date Constructed 1892 Date(s) Reconstructed 1927

Designer

Constructed By

Owner CITY OF MECHANICVILLE

2) Embankment

a. Characteristics

(1) Embankment Material UNKNOWN

(2) Cutoff Type ~~[illegible]~~ UNKNOWN

(3) Impervious Core POSSIBLY HAS CONCRETE CORE WALL, BUT PLANS DON'T SHOW IT & NO EVIDENCE IN FIELD

(4) Internal Drainage System NONE

(5) Miscellaneous

b. Crest

(1) Vertical Alignment SOMEWHAT UNEVEN - OCCASSIONAL LOW SPOTS

(2) Horizontal Alignment SATISFACTORY

(3) Surface Cracks NONE NOTED

(4) Miscellaneous BIKE PATH RUNS LENGTH OF CREST - SUBSTANTIAL BRUSH ON EITHER SIDE OF PATH

c. Upstream Slope

(1) Slope (Estimate) (V:H) 1 ON 2 - SOMEWHAT VARIABLE

(2) Undesirable Growth or Debris, Animal Burrows SUBSTANTIAL BRUSH COVER - STUMPS FROM OLD TREES

(3) Sloughing, Subsidence or Depressions NONE NOTED

(4) Slope Protection SMALL RIPRAP ON LOWER PART OF SLOPE

(5) Surface Cracks or Movement at Toe UNOBSERVABLE

d. Downstream Slope

(1) Slope (Estimate - V:H) 1 ON 2.5 TO 1 ON 3

(2) Undesirable Growth or Debris, Animal Burrows COVERED WITH BRUSH & TREES - LOTS OF BRUSH & CUT TREES FROM PREVIOUS CUTTING

(3) Sloughing, Subsidence or Depressions NO CRACKS OBSERVED BUT THERE WERE SOME BENT TREES ON SLOPE INDICATING PRIOR MOVEMENTS

(4) Surface Cracks or Movement at Toe NONE OBSERVED BUT BRUSH AND TREES PREVENTED CLOSE INSPECTION

(5) Seepage ONE SOFT AREA EXTENDED ALONG TOE IN ABOUT MIDDLE THIRD OF DAM - AT ONE END OF THIS WET AREA THERE WAS A RECTANGULAR WET AREA ABOUT 10' X 20'. GROUND SOFT & SOME STANDING WATER OBSERVED. AREA WAS AT RIGHT END OF WET AREA.

(6) External Drainage System (Ditches, Trenches; Blanket) NONE

NO ACTUAL SEEPAGE OBSERVED

(7) Condition Around Outlet Structure SOME SCOUR ON RIGHT END OF SPILLWAY HEADWALL

(8) Seepage Beyond Toe WET AREA NOTED ABOVE

e. Abutments - Embankment Contact

RIGHT ABUTMENT VERY STEEP

LEFT ABUTMENT FAIRLY STEEP

5) Reservoir

a. Slopes FAIRLY STEEP SLOPES - ESPECIALLY ON RIGHT BANK

b. Sedimentation NONE NOTED

c. Unusual Conditions Which Affect Dam PLANNED HOUSING DEVELOPMENT WILL COVER LARGE PART OF WATERSHED

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.) 10-15 HOUSES IN WILLOW GLEN; LOWER RESERVOIR & WATER TREATMENT PLANT; STATE HIGHWAY

b. Seepage, Unusual Growth NONE

c. Evidence of Movement Beyond Toe of Dam SOME SCOUR ON BEND IN PLUM BROOK - STARTING TO IMPINGE ON TOE OF EMBANKMENT

d. Condition of Downstream Channel PLUM BROOK RUNS NEAR TOE OF EMBANKMENT & THEN BENDS AWAY.

7) Spillway(s) (Including Discharge Conveyance Channel)

DROP INLET WITH 3 OUTLET PIPES

STANDPIPE WITH 16" OUTLET PIPE

a. General DROP INLET PASSES NORMAL FLOWS & PUTS WATER INTO PLUM BROOK; STANDPIPE HAS THREE INLET PORTS - VALVES ALWAYS OPENED - LEADS TO 16 INCH SUPPLY LINE

AUX. SPILLWAY CHANNEL SHOWN ON PLANS DOES NOT EXIST

b. Condition of Service Spillway DROP INLET STRUCTURE IN FAIRLY GOOD CONDITION. SOME CRACKED & BROKEN CONCRETE ON CREST ALONG ENTIRE EMBANKMENT SIDE EDGE - OTHER 3 SIDES ARE OKAY - SOME CRACKED CONCRETE ON INLET FLOOR AS WELL - WELL PITS & UPSTREAM PART OF PIPES LOOK OKAY. FLASHBOARDS ON SIDES WERE INSTALLED IN FALL, 1980 SOME LEAKAGE BETWEEN BOARDS & UNDER THEM AT MASONRY-JOINTS BUT OTHERWISE IN GOOD CONDITION SOME OF PINS ~~[illegible]~~ HOLDING BOARDS WERE BENT

TIMBER ROOF ON DROP INLET IN STATE OF DISREPAIR. ROOF BOARDS ROTTED & SOME COMPLETELY GONE. CORRUGATED METAL ROOF GONE ON LEFT SIDE; BENT UP ON RIGHT.

OUTLET PIPES - 3 PIPES ON VARYING SLOPES. SOME MINOR DISPLACEMENT OF JOINTS NOTED

HEADWALL - LAID UP STONE - SOME STONES MISSING - 1' deep BY 2' HIGH VOID BETWEEN PIPES 2 & 3 - SOME SCOUR (REMOVED BACKFILL) ADJACENT TO RIGHT SIDE

c. Standpipe Spillway STANDPIPE OUT IN RESERVOIR - 2 CABLES LEADING TO SHORE SUPPORT IT. THREE REPORTEDLY OPERABLE VALVES AT DIFFERENT ELEVATIONS CONTROL FLOW INTO PIPE. 16" LINE LEADS TO 2 MANHOLES AT DOWNSTREAM TOE - BOTH BRICK MANHOLES WITH SOME DETERIORATION - FIRST ON HAS VALVE FOR 16" BLOW OFF PIPE OTHER HAS VALVE FOR SUPPLY PIPE

d. Condition of Discharge Conveyance channel STEEP SIDE SLOPES SOME DEBRIS IN CHANNEL

8/Reservoir Drain/Outlet

STAND PIPE CAN SERVE THIS FUNCTION - ALTHOUGH ELEVATION OF LOWEST OPENNING IS UNKNOWN

9/Operation Procedures

NO SPECIAL OPERATION PROCEDURES.

10/ APPURTENANT STRUCTURES

NONE

11/STRUCTURAL

DESCRIPTION PROVIDED IN SPILLWAY SECTION

APPENDIX C

HYDROLOGIC/HYDRAULIC
ENGINEERING DATA AND COMPUTATIONS

MECHANICVILLE
RESV. DAM
NY-1061

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

AREA-CAPACITY DATA:

	(USGS DATUM) Elevation (ft.)	Surface Area (acres)	Storage Capacity (acre-ft.)
1) Top of Dam	268.5	35	322
2) Design High Water (Max. Design Pool)	NA		
3) Auxiliary Spillway Crest	NA		
4) Pool Level with Flashboards	265.2		
5) Service Spillway Crest	263.0	22	201

DISCHARGES

	Volume (cfs)
1) Average Daily	N/A
2) Spillway @ Maximum High Water (NO STOPLOGS)	343
3) Spillway @ Design High Water	N/A
4) Spillway @ Auxiliary Spillway Crest Elevation	N/A
5) Low Level Outlet (STANDPIPE - 3 OUTLETS)	UNKNOWN
6) Total (of all facilities) @ Maximum High Water	± 350
7) Maximum Known Flood	UNKNOWN
8) At Time of Inspection	N/A

93-15-4(9/80)

MECHANICVILLE
RESV. DAM
NY-1061 2

CREST: (USGS) ELEVATION: 268.5

Type: EARTH w/ VEGETATIVE COVER + BRUSH & TREES

Width: 20' Length: 380'

Spillover N/A

Location N/A

SPILLWAY:

SERVICE		AUXILIARY
263	(CREST) Elevation	
±12' SQUARE WEIR w/ 3 VERTICAL 30" DIA. DROP INLETS	Type	NONE
12"	Width	

Type of Control

	Uncontrolled	
✓	Controlled:	
2.2' HIGH WOODEN STOPLOGS ALL AROUND	Type (Flashboards; gate)	
—	Number	
—	Size/Length	
	Invert Material	
	Anticipated Length of operating service	
N/A	Chute Length	
>1'	Height Between Spillway Crest & Approach Channel Invert (Weir Flow)	

93-15-4(9/80)

HYDROMETEROLOGICAL GAGES:

Type : NONE

Location:

Records:

Date -

Max. Reading -

FLOOD WATER CONTROL SYSTEM:

Warning System: NONE

Method of Controlled Releases (mechanisms):

NONE 3 WITHDRAWAL OPENINGS IN STANDPIPE ARE OPEN (GRAVITY FLOW TO WATER TREATMENT PLANT)

MECHANICVILLE
RESN. DAM
NY-1061 4

DRAINAGE AREA: 1400 ACRES 2.19 SQ. MILES

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: FOREST & OPEN FIELDS

Terrain - Relief: HILLY; SLOPES MODERATE; LARGE WETLANDS @ HEADWATERS

Surface - Soil: PERMEABLE SANDS & GRAVELS

Runoff Potential (existing or planned extensive alterations to existing (surface or subsurface conditions)

LUTHER FOREST DEVELOPMENT (SECTION II - AFTER 1985)

Potential Sedimentation problem areas (natural or man-made; present or future)

SOILS ARE SUBJECT TO EROSION; WITH TIME, RESERVOIR AREA NEAR ELMOR ROBINSON ROAD COULD BECOME SEDIMENT-FILLED

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

NONE APPARENT; ELMOR ROBINSON ROAD ELEV. ≈ TOP OF DAM ELEV.

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the Reservoir perimeter:

Location: NONE APPARENT

Elevation:

Reservoir:

Length @ Maximum Pool ± 0.6 (Miles)

Length of Shoreline (@ Spillway Crest) ± 1.5 (Miles)

93-15-4(9/80)

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESERVOIR NY-1061	1/		
SUBJECT		**COMPUTED BY**	**DATE**
WATERSHED PARAMETERS		WCL	4/17/81

DRAINAGE AREA : USGS 7.5 MIN QUAD FOR MECHANICVILLE NY

SCALE: 1" = 2000'

1 SQ IN = 91.827 ACRES

DR AREA = 1400 ACRES ← 15.25 SQ IN

DA = 2.19 SQ MILES

SNYDER UNIT HYDROGRAPH PARAMETERS :

LAG TIME : $t_p = C_t (L \times L_{CA})^{0.3}$ $C_t = 2.5$ (INCREASED C_t slightly to account for upland storage)

$L = 2.98$ MILES $= 15750'$

$L_{CA} = 1.18$ MILES $= 6250'$

$t_p = (2.5)(2.98 \times 1.18)^{0.3} = 3.65$ HRS

UNIT RAINFALL DURATION : $t_r = \dfrac{t_p}{5.5}$

$t_r = 0.66$ HRS USE $t_R = 0.5$ HRS ←

ADJUSTED LAG : $TP = t_p + 0.25(t_R - t_r)$

$TP = 3.65 + 0.25(0.5 - 0.66)$

$TP = 3.61$ HRS ←

PEAKING COEFFICIENT :

$640\ CP = 400$

$CP = 0.625$ ←

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	21		
SUBJECT		**COMPUTED BY**	**DATE**
WATERSHED PARAMETERS		WCL	4/20/81

PMP - RAINFALL : HRR # 33

INDEX PRECIPITATION = 19"
(200 SQ MI / 24 HR)

	HRS →	6	12	24	48
@ N 42° 57' / W 73° 43' ; ZONE # 1 ; LOWER LIMIT OF D-A-D CURVES	% OF INDEX =	111	123	132	142 ←

SOIL INFILTRATION - PRECIP. LOSS RATES:

SOIL TYPES: SANDS & GRAVELS

SOIL NAME	SCS GROUP	INFILTRATION RATES INS/HR	TYP.
COLONIE	A	0.3 - 0.45	0.4
HOOSIC	A	0.3 - 0.45	0.4
HUDSON	C	0.08 - 0.15	0.1

USE: 1.0 INS - INITIAL ←
0.2 INS - CONSTANT ←

BASE FLOW:

FROM USGS GAGE DATA FOR ANTHONY KILL (INCLUDES PLUM BROOK WATERSHED)
#01335700

BULL #74 { AVE. OF 16 READINGS CSM = 13.45
AVE. OF 14 " = 6.67
(DELETE 210 & 213 READINGS) }

USE 6 cfs/SQ MI ←

QRCSN = -0.1 ←

RTIOR = 1.5 ←

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	3/		
SUBJECT		**COMPUTED BY**	**DATE**
ELEVATION - STORAGE CAPACITY		WCL	4/20/81

FROM 200 SCALE RESV. MAPPING

1 SQ IN = 0.91827 ACRES

PLANIMETERED @ 13.09
10.86

NORMAL POOL : 23.95 SQ INS. ⟶ 22 ACRES ⟵ ELEV. @ 263

(ASSUMED POOL = SPILLWAY CREST)

USGS

HEIGHT OF DAM (EMBANKMENT) ESTIMATED @ 25'+

STANDPIPE HEIGHT REPORTED AS 33' - BOTTOM RESV.

TOP OF EMBANKMENT TO SPILLWAY CREST ≈ 5.5' ⟵ ELEV. @ 268.5

∴ CONIC VOLUME @ NORMAL POOL $= \frac{1}{3} A h = \frac{(22)(27.5)}{3} =$ 201 AC-FT

USE

VOLUME : ABOVE NORMAL POOL (TO TOP DAM) = 22(5.5) = 121 AC-FT = ΔV

TOP OF DAM: VOL = 322 AC-FT

REPORTED VOLUME ≈ 135 MILLION GALS. ⟶ 414.1 AC-FT

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PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	4/		
SUBJECT: SPILLWAY DISCHARGES - ANALYSIS DATA		COMPUTED BY: WCL	DATE: 4/23/81

SPILLWAY DIMENSIONS:

	TOTAL LENGTH	
OUTER PERIMETER @ 14.9' EACH SIDE	59.6'	
STOPLOG LENGTH @ 12.9' EACH SIDE	51.6'	
12 - 1" ∅ PINS/SIDE = 1' EACH SIDE		
STOPLOG LENGTH (NET)	47.6'	WEIR ←
4 PIERS = MASONRY CORNER POST ($K_p = 0.02$)		
SPILLWAY CREST @ 12.25' EACH SIDE	49'	WEIR ←

FLOW CONDITIONS:

	CALC. SHT. #
WEIR FLOW OVER STOPLOGS	9
WEIR FLOW OVER SPILLWAY - NO STOPLOGS	5
ORIFICE (HORIZ) FLOW FOR RCP INLETS	8
CONDUIT FLOW THRU INLETS TO OUTLET STRUCTURE	6

TOP OF DAM (EARTH EMBANKMENT)

$Q = CLH^{3/2}$ $L = 380'$

$C = 2.63$

(BROAD-CRESTED WEIR)

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

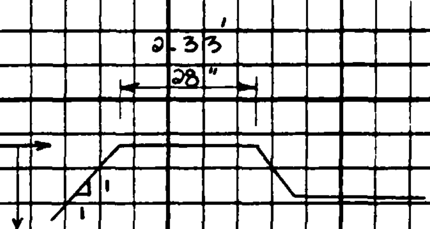
JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	5/		
SUBJECT		**COMPUTED BY**	**DATE**
SPILLWAY DISCHARGES - NO STOPLOGS		WCL	4/23/81

WEIR FLOW OVER SPILLWAY: $Q = CLH^{3/2}$

L = 49'

C - VARIES W/ H

(VERTICAL) C = 3.2



REF: DESIGN OF SMALL DAMS
BUREC - 1977
pg. 379

USGS	(RELATIVE) ELEV.	H	P/H	(FIG. 251) C_{INCL}/C_{VERT}	C	Q	
263	-0-	-0-	—	—	3.2	—	
		0.1	10	0.994	3.18	4.9	
		0.2	5	0.994	3.18	13.9	
		0.5	2	0.994	3.18	55	
		0.75	1.33	0.995	3.18	101	
		1	1	0.998	3.19	156	
		1.5	0.66	1.005	3.21	289	
		1.59	—	—	3.215	316	
		1.74	—	—	3.224	363	
		2	0.5	1.012	3.24	449	
		2.5	0.4	1.017	3.25	629	
		3	0.33	1.022	3.27	832	
		3.5	0.29	1.025	3.28	1052	
TOP POST	3.85	3.85	0.26	1.027	3.28	1214	
		4	0.25	1.029	3.29		ORIFICE CONTROL
		5	0.20	1.034	3.30		
TOP DAM	5.5	5.5	0.18	1.036	3.31		CONDUIT CONTROL

00-15-1 (3/78)
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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	6		
SUBJECT		**COMPUTED BY**	**DATE**
SPILLWAY DISCHARGES – CONDUIT FLOW TO OUTLET NO STOPLOGS		WCL	4/24/81

$$Q = A\sqrt{\frac{2gH}{1 + K_e + K_b + K_pL}}$$

CONDUIT = STEEL

$n = 0.015$ $A = 4.909$ SQ FT

(FOR 30" ϕ) $K_p = 0.0123$ $L \approx 130'$ (SHT 7)

$K_pL = 1.60$

$K_b = \frac{n}{3}\beta$ $\beta = 45°$

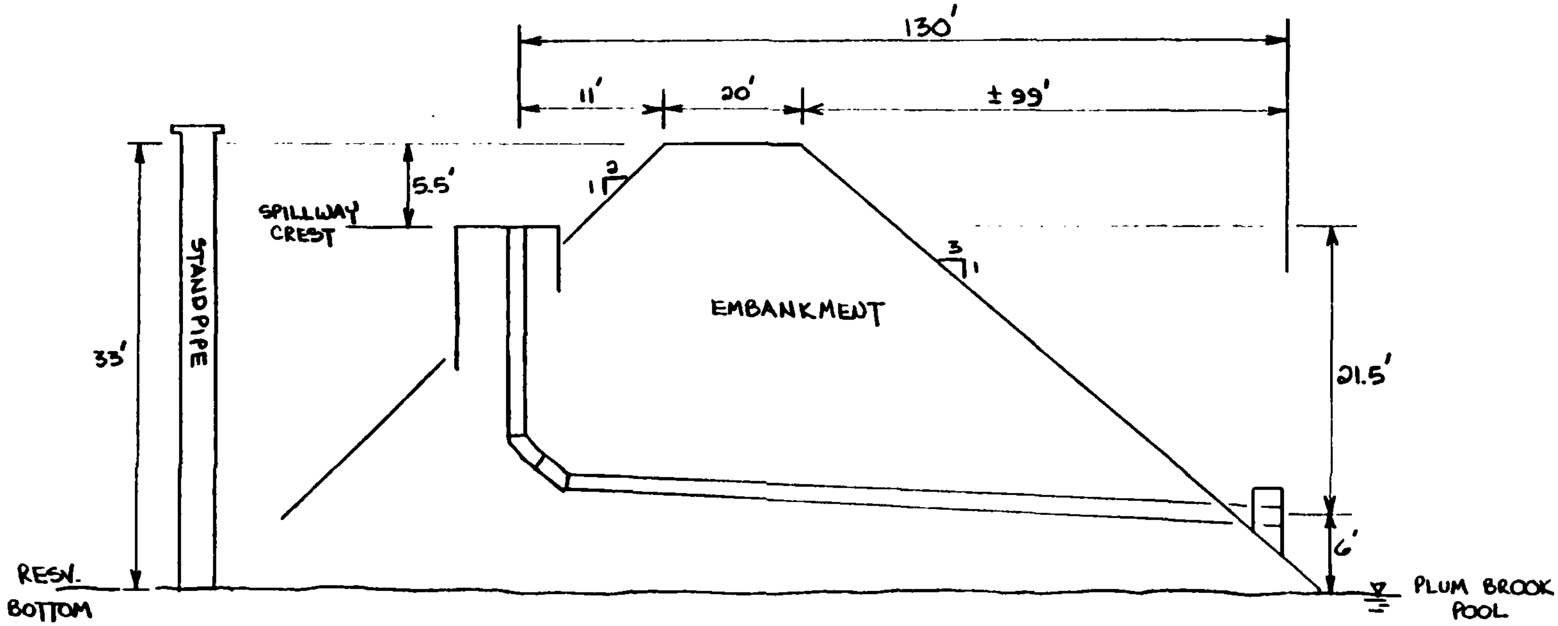
FOR ONE PIPE:

$K_b = 0.225$ $K_e = 0.5$

$Q = 21.604\sqrt{H_T}$ WHERE $H_T = (H + 21.5)$

CONC. FLOOR @ ± 12" BELOW SPILLWAY CREST

USGS	(RELATIVE) ELEV.	H	H_T	Q		3 PIPES Q
263	–0–	1	22.5	102		306
		1.5	23	103.6	SPILLWAY	310.8
		1.75	23.25	104.2	CREST	312.6
	1	2	23.5	104.7	CONTROLS	314.1
	1.5	2.5	24	105.8		317.4
	1.59	2.59	24.09	106.0		318.0
	2	3	24.5	106.9		320.7
		3.5	25	108		324
	3	4	25.5	109.1		327.3
		4.5	26	110.1		330.3
TOP POST	3.85	4.85	26.35	110.9		332.7
	4	5	26.5	111.2		333.6
	5	6	27.5	113.3		339.9
TOP DAM	5.5	6.5	28	114.3		342.9



EMBANKMENT CROSS-SECTION
(ESTIMATED - NTS)

MECHANICVILLE RESERVOIR DAM
NY - 1061

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESN.	8/		
SUBJECT		**COMPUTED BY**	**DATE**
SPILLWAY DISCHARGES — FLOW INTO RCP INLETS NO STOPLOGS		WCL	4/24/81

ORIFICE FLOW INTO 30" DIAM. DROP INLETS (HORIZ)

PIPE SOCKET BELOW CONC. FLOOR = 0.33' C = 0.62

$Q = CA\sqrt{2gH}$ $A = \frac{\pi D^2}{4} = 4.909$ SQ FT

FOR 3 PIPES: A = 14.727 SQ FT

$Q = 73.274\sqrt{H}$

CONC. FLOOR @ ±12" BELOW SPILLWAY CREST

USGS	(RELATIVE) ELEV.	H	Q		3 PIPES Q
263	-0-	1	73		
		1.1	76		
		1.2	80	SPILLWAY CREST CONTROLS	240
		1.5	89		267
		1.75	97		291
	1	2	103		309
	1.5	2.5	115		345
	1.74	2.74	121.3		363.9
	2	3	127		381
		3.5	137		411
	3	4	146		438
		4.5	155		465
TOP POST	3.85	4.85	161		483
	4	5	163		489
	5	6	179		537
TOP DAM	5.5	6.5	186		558

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	9/		
SUBJECT		COMPUTED BY	DATE
SPILLWAY DISCHARGES - WITH STOPLOGS		WCL	4/24/81

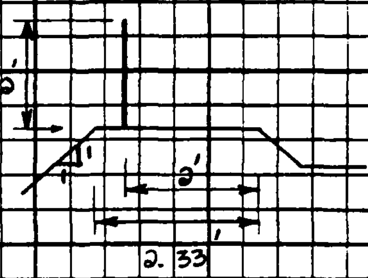
SHARP-CRESTED WEIR FLOW OVER STOPLOGS

$Q = CLH^{3/2}$ C & L VARY w/ H

(NET) STOPLOGS $L' = 47.6'$

P = 2.2

ELEV. 0 = CREST



WEIR $L = L' - 2(NK_p + K_a)H$

$K_a = 0$

(CORNER POSTS) $N = 4$ $K_p = 0.02$

$\therefore$ $L = 47.6 - 0.16H$

SHARP-CRESTED WEIR WO/ END CONTRACTIONS:

C VARIES w/ H/P RATIO

REF:

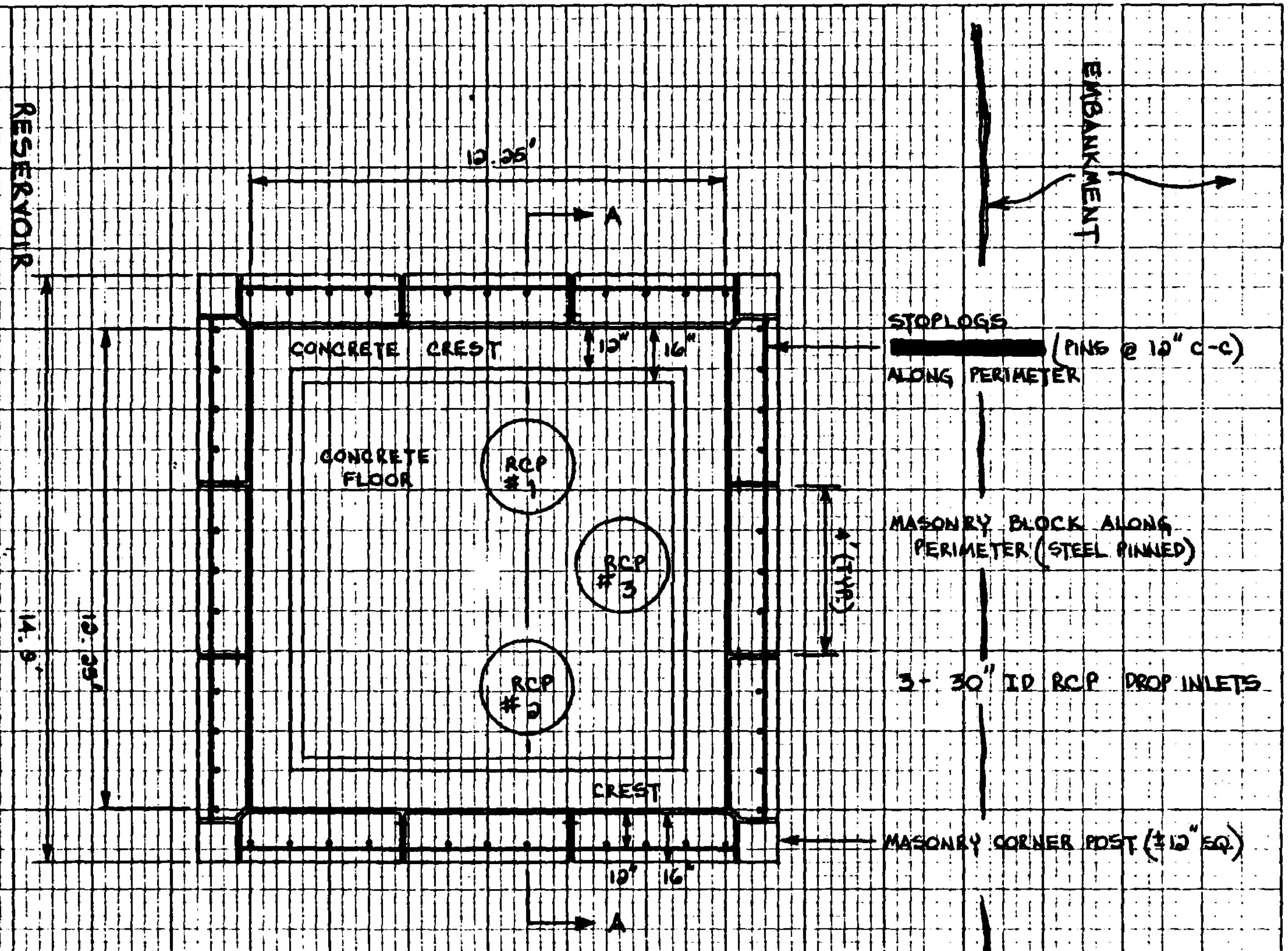
HANDBOOK OF HYDRAULICS 5TH ED.

KING & BRATER

FIG. 5-2 (b)

USGS	(RELATIVE) ELEV.	H	(STOPLOGS) H_B	H_B/P	C	L	Q
263	-0-	-0-	-2.2	—	3.2	47.6	—
		2.2	-0-	—	3.2	47.6	-0-
		2.7	0.5	0.23	3.3	47.52	55
		3	0.8	0.36	3.35	47.47	113
		3.5	1.3	0.59	3.5	47.39	245
TOP POST	3.85	3.85	1.65	0.75	3.55	47.33	356

K+E 12 X 12 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A. 46 0940

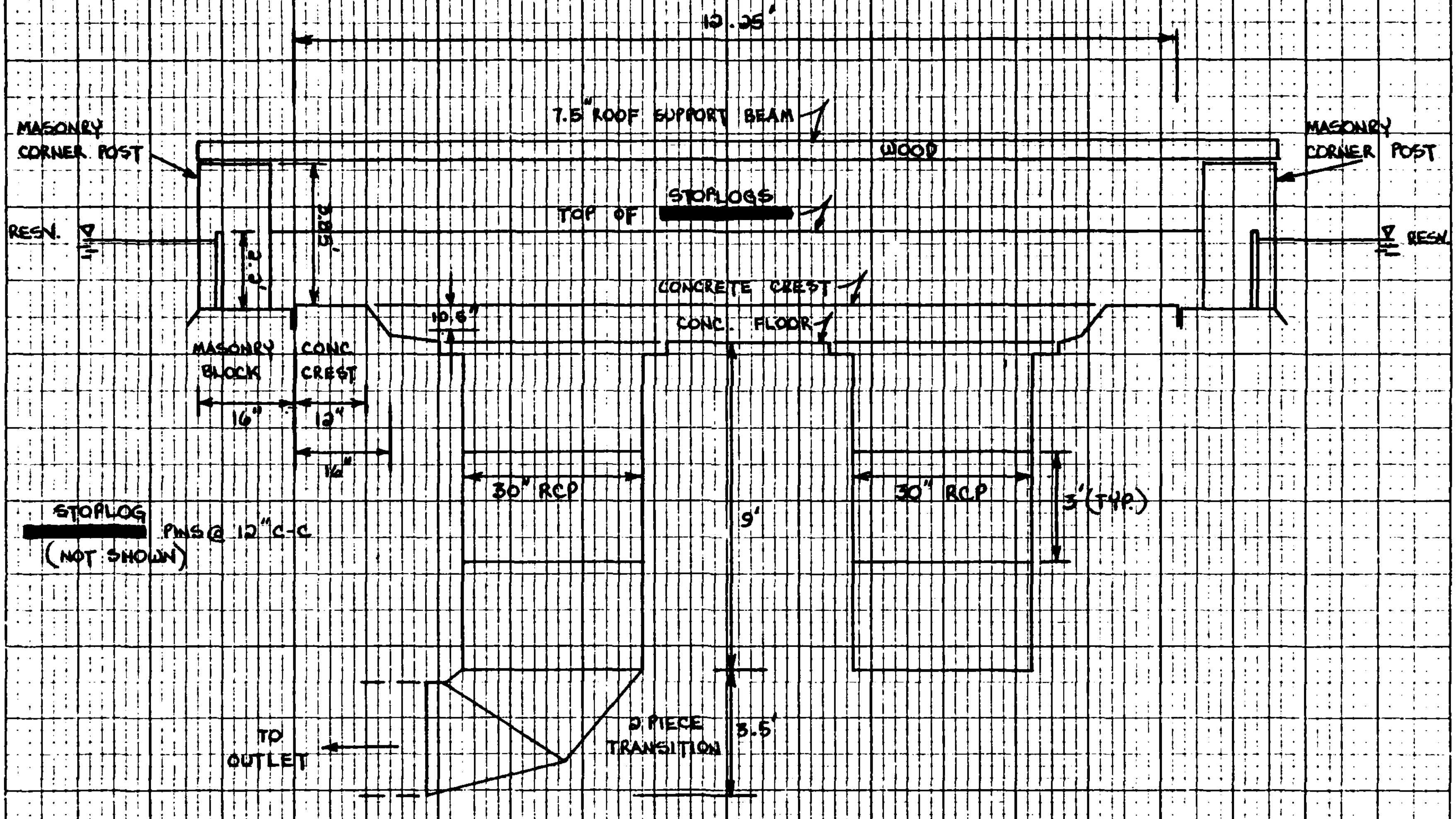


SPILLWAY - PLAN
(NTS)

MECHANICVILLE
RESERVOIR DAM
NY-1061

[FIELD MEAS. - 4/81]

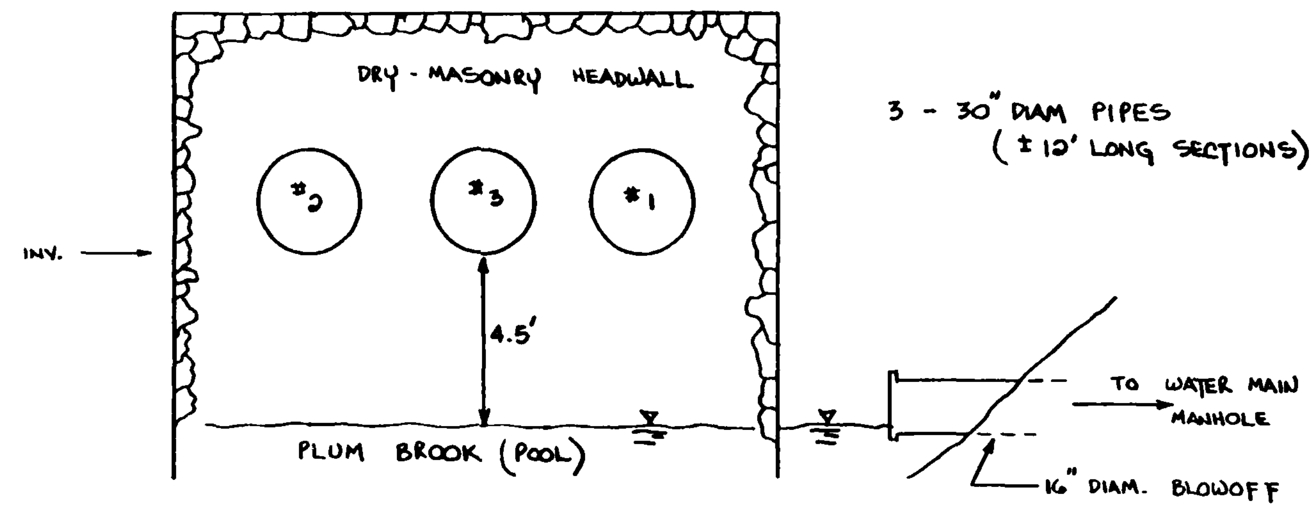
46 0940



ELEVATION - SECTION A-A

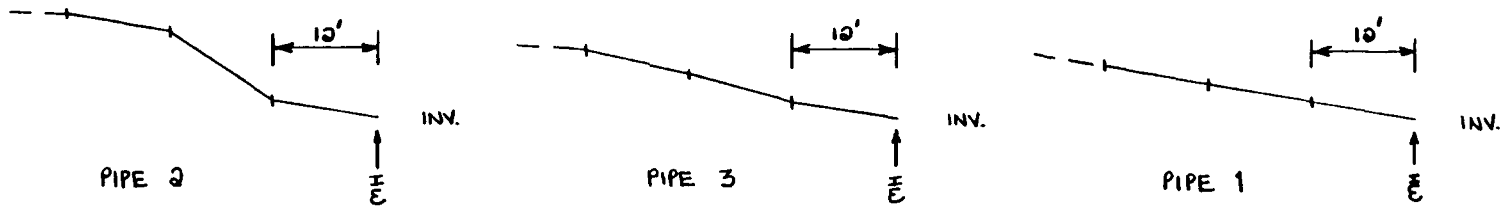
MECHANICVILLE RESERVOIR DAM
NY - 1061

FIELD MEAS. - 4/81



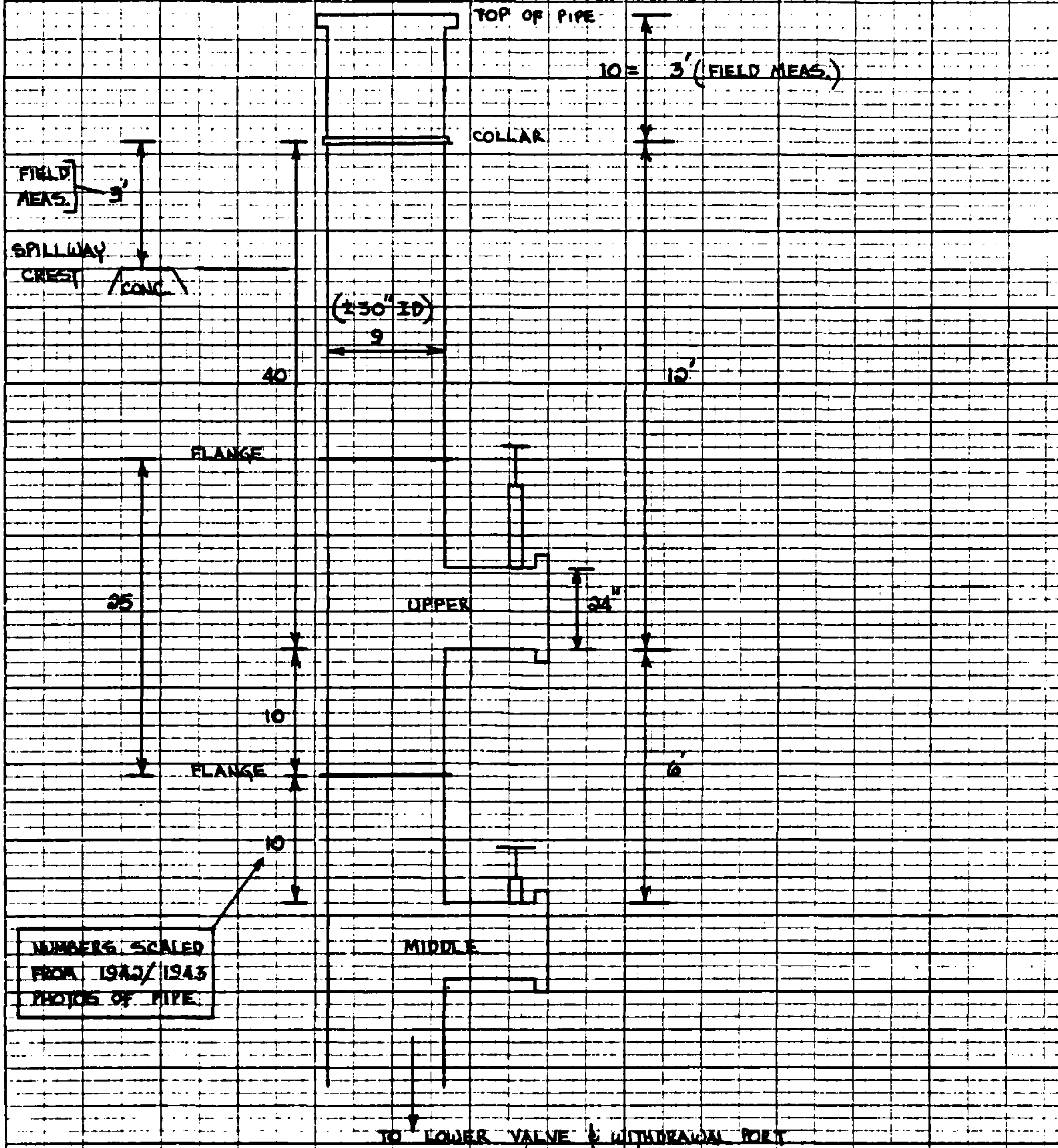
SPILLWAY OUTLET STRUCTURE

(RELATIVE) PROFILES OF OUTLET PIPES
[VISUAL INSP. - 4/81]



MECHANICVILLE
RESERVOIR DAM

NY-1061



WATER SUPPLY STANDPIPE

[FIELD MEAS. - 4/81

MECHANICVILLE RESERVOIR DAM

NY-1061

DAM NAME: MECHANICVILLE RESV.

#: NY-1061

DOWNSTREAM CHANNEL:

FLOW TIME [redacted]

SHEET # 10/___

BY: WCL DATE: ________

CHKD: ________ DATE: ________

COMPUTED: T_c = ______ (HRS)

MAP: USGS QUAD SHEET - MECHANICVILLE

[SCS FIG. 15.2]

(BLUE LINE) LENGTH ([redacted])	BASE ELEVATION	Δ ELEV.	SLOPE (%)	VELOCITY (fps)	TIME (sec)
DAM	263 RESV. POOL @ SPILLWAY CREST				
—	235.5 OUTLET POOL				
—	236	PLUM BROOK			
500		6	1.20	1.65	303
—	230				
800		10	1.25	1.69	473
—	220				
1900			0.53	1.1	1727
—	210 WIDE				
1700			0.59	1.16	1465
—	200 NARROW				
500		10	2	2.13	235
—	190				
900		30	3.33	2.75	327
—	160				
400		10	2.5	2.4	166
—	150				
500		10	2	2.13	235
—	140				
500 — TO WATER PLANT					
800		10	1.25	1.69	473
—	130 — LOCAL ROAD				

Σ = 8000′

VELOCITY ≈ 1.5 fps (1.48)

SUBTOTAL: 5404 (1.50 HRS)

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MECHANICVILLE RESV.	11/		
SUBJECT		**COMPUTED BY**	**DATE**
DOWNSTREAM CHANNEL = PLUM BROOK		WCL	

REACH # 1 = DAM TO 3200' DNSTRM (EL. 210)

L = 3200'

(WTD AVE) SLOPE @ 0.81%

STREAM:	MAIN CHANNEL	OVERBANK
DEPTH	USE 2'	—
WIDTH	USE 15'	200'
"n" VALUE	USE 0.04	0.04

REACH # 2 = CONTOUR 210 DNSTRM TO LOCAL ROAD (GEORGE THOMPSON RD.)

L = 4800'

(WTD AVE) SLOPE @ 1.67%

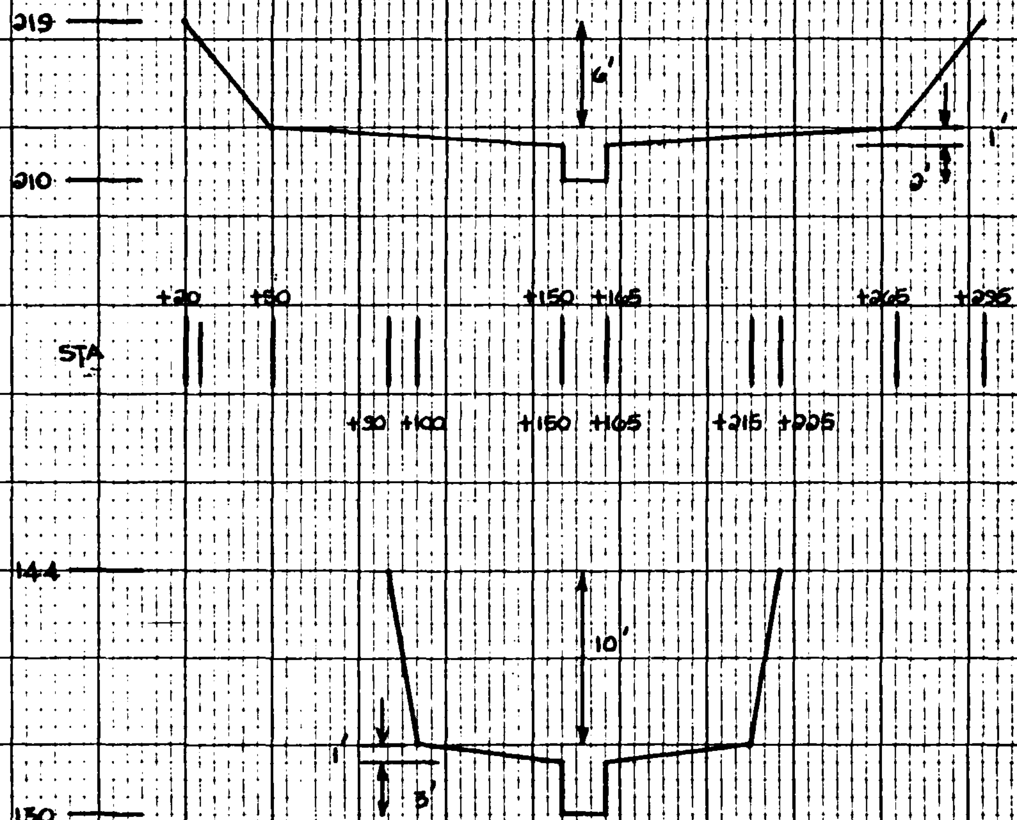
STREAM:	MAIN CHANNEL	OVERBANK
DEPTH	USE 3'	—
WIDTH	USE 15'	100'
"n" VALUE	USE 0.04	0.04

TOTAL REACH = 8000'

$$(\text{AVE})\ \text{SLOPE} = \frac{(236 - 130)}{80} = 1.325\%$$

MECHANICVILLE RESERVOIR
NY - 1061

PLUM BROOK - DOWNSTREAM CHANNEL



REACH #1 @ 3200'

REACH #2 @ 8000'

SHT 12/

NY - 1061

DAM: MECHANICVILLE RESERVOIR

By: WCL Date: ______

Sht: 13

SUMMARY OF FLOOD ANALYSIS

STOPLOGS [redacted] OUT

#	ANALYSIS CONDITIONS:	RATIO	PEAK INFLOW	PEAK OUTFLOW	Overtopping Depth @ Dam	STA: 32K W.S.Elev.	DOWNSTREAM LOCATION Inv: 210.0 Flow Depth	STA: 80K W.S.Elev.	Inv: 130.0 Flow Depth	
1	NO BREACH	0.20	634	342	-0-	212.7	2.7	132.9	2.9	
		0.21	665	406	0.16	212.8	2.8	133.2	3.2	
		0.5	1584	1587	1.15	213.9	3.9	134.8	4.8	—
		1.0	3168	3171	1.99	214.8	4.8	135.9	5.9	—
2	BREACH: BOT. EL. 252	0.20	634	342	-0-	212.7	2.7	132.9	2.9	
	TFAIL = 0.5 HRS									
	BREACH DEPTH = 16.5'	0.21	665	406	0.16	212.8	2.8	133.2	3.2	
	FAILEL = 269.5									
		0.5	1584	6077	1.11	215.4	5.4	136.5	6.5	+1.7
		1.0	3168	6534	1.36	215.7	5.7	137.0	7.0	+1.1
3	BREACH: BOT. EL. 236	0.20	634	342	-0-	212.7	2.7	132.9	2.9	
	TFAIL = 2 HRS									
	BREACH DEPTH = 32.5'	0.21	665	406	0.16	212.8	2.8	133.2	3.2	
	FAILEL = 269.5									
		0.5	1584	4663 (4694)	1.11	215.2	5.2	136.4	6.4	+1.6
		1.0	3168	5575 (5930)	1.36	215.6	5.6	137.0	7.0	+1.1

NY - 1061

DAM: MECHANICVILLE RESERVOIR

SUMMARY OF FLOOD ANALYSIS

By: WCL Date:

Sht: 14

STOPLOGS [redacted] OUT

#	ANALYSIS CONDITIONS:		RATIO	PEAK INFLOW	PEAK OUTFLOW	Overtopping Depth @ Dam	STA: 32K W.S.Elev.	Inv = 210.0 Flow Depth	STA: 80K W.S.Elev.	Inv = 130.0 Flow Depth	
4	BREACH :	Bot. El. 252	0.20	634	342	-0-	212.7	2.7	132.9	2.9	
	TFAIL = 0.	5 HRS									
	BREACH DE	PTH = 16.5'	0.21	665	5143	0.11	214.9	4.9	135.9	5.9	+2.7
	FAILEL =	268.6									
			0.5	1584	5986	0.76	215.4	5.4	136.6	6.6	+1.8
			1.0	3168	6214	0.62	215.3	5.3	136.9	6.9	+1.0

```
**********************************                                 **********************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                                   NEW YORK STATE
DAM SAFETY VERSION      JULY 1978                                  DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION  26 FEB 79                                     FLOOD PROTECTION BUREAU
  MODIFIED FOR HONEYWELL APR 79
**********************************                                 **********************************
    1            A1  NY-1061   MECHANICVILLE RESERVOIR DAM          UPPER HUDSON RIVER BASIN
    2            A2            DEC 225A-142 UH -- PLUM BROOK        SARATOGA COUNTY
    3            A3            CITY         WATER SUPPLY            SNYDER UH
    4            B      200       0      30       0       0       0       0       0       0       0
    5            B1       5
    6            J        1       8       1
    7            J1    0.20    0.21    0.22    0.23    0.24    0.25    0.50       1
    8            K        0   BASIN                                       1
    9            K1            INFLOW HYDROGRAPH -- DAM
   10            M        1       1    2.19            2.19                            1
   11            P               19     111     123     132     142
   12            T                                                      1.0     0.2
   13            W     3.61   0.625
   14            X       -6    -0.1     1.5
   15            K        1     DAM                                       1
   16            K1            ROUTED OUTFLOW - DAM - SPILLWAY ELEV 263-USGS   FLASHBOARDS OUT[redacted]
                                                                               NO BREACH
   17            Y                                1       1
   18            Y1       1                                             -263      -1
   19            Y4     263   263.1   263.2   263.5   264.0   264.5  264.59   265.0   265.5   266.0
   20            Y4   266.5  266.85   267.0   268.0   268.5
   21            Y5       0     4.9    13.9      55     156     289     316     320     324     327
   22            Y5     330     332     333     340     343
   23            $S     201     322
   24            $E     263   268.5
   25            $$     263
   26            $D   268.5    2.63     1.5     380
   27            K        1     32K                                       1
   28            K1            REACH 1   DAM TO 210
   29            Y                                1       1
   30            Y1       1
```

```
30         Y1    1


31         Y6  0.04   0.04   0.04   210   220   3200  0.0081
32         Y7    20    219     50   213   150    212   150   210   165   210
33         Y7   165    212    265   213   295    219
34         K      1    80K                                   1
35         K1          REACH 2   210 TO 130 LOCAL ROAD
36         Y                          1         1
37         Y1     1
38         Y6  0.04   0.04   0.04   130   145   4800  0.0167
39         Y7    90    144    100   134   150    133   150   130   165   130
40         Y7   165    133    215   134   225    144
41         K     99
42         A
43         A
44         A
45         A
46         A
```

```
PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS
          RUNOFF HYDROGRAPH AT        BASIN
          ROUTE HYDROGRAPH TO           DAM
          ROUTE HYDROGRAPH TO           32K
          ROUTE HYDROGRAPH TO           80K
          END OF NETWORK
```

```
**********************************                        **********************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                          NEW YORK STATE
DAM SAFETY VERSION      JULY 1978                         DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION  26 FEB 79                            FLOOD PROTECTION BUREAL
  MODIFIED FOR HONEYWELL APR 79
**********************************                        **********************************

RUN  DATE 05/19/81
                 NY-1061   MECHANICVILLE RESERVOIR DAM             UPPER HUDSON RIVER BASIN
                           DEC 225A-142 UH -- PLUM BROOK           SARATOGA COUNTY
                           CITY          WATER SUPPLY              SNYDER UH

                                       JOB SPECIFICATION
                 NO      NHR     NMIN    IDAY     IHR    IMIN   METRC    IPLT    IPRT   NSTAN
                200        0       30       0       0       0       0       0       0       0
                                        JOPER     NWT   LROPT   TRACE
                                            5       0       0       0

                                 MULTI-PLAN ANALYSES TO BE PERFORMED
                                       NPLAN= 1 NRTIO= 8 LRTIO= 1
                  RTIOS=   0.20   0.21   0.22   0.23   0.24   0.25   0.50   1.00

          **********          **********          **********          **********          **********

                                   SUB-AREA RUNOFF COMPUTATION

                          INFLOW HYDROGRAPH -- DAM
                             ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
                             BASIN       0       0       0       0       0       1       0       0

                                          HYDROGRAPH DATA
                 IHYDG    IUHG   TAREA    SNAP   TRSDA   TRSPC   RATIO   ISNOW   ISAME   LOCAL
                     1       1    2.19      0.    2.19      0.      0.       0       1       0

                                           PRECIP DATA
                         SPFE     PMS      R6     R12     R24     R48     R72     R96
                           0.   19.00  111.00  123.00  132.00  142.00      0.      0.
TRSPC COMPUTED BY THE PROGRAM IS 0.800

                                            LOSS DATA
              LROPT   STRKR   DLTKR   RTIOL   ERAIN   STRKS   RTIOK   STRTL   CNSTL   ALSMX   RTIMP
                  0      0.      0.    1.00      0.      0.    1.00    1.00    0.20      0.      0.

                                       UNIT HYDROGRAPH DATA
                                     TP=  3.61     CP=0.63     NTA=  0

                                           RECESSION DATA
                           STRTQ=    -6.00     QRCSN=    -0.10     RTIOR= 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 8.20 AND R= 6.53 INTERVALS

                  UNIT HYDROGRAPH 39 END-OF-PERIOD ORDINATES, LAG=    3.58 HOURS, CP= 0.63   VOL= 1.00
              12.        45.        85.       139.       188.       226.       247.       250.       231.       199.
             171.       146.       126.       108.        92.        79.        68.        58.        50.        43.
              37.        32.        27.        23.        20.        17.        15.        13.        11.         9.
               8.         7.         6.         5.         4.         4.         3.         3.         2.

        0                                 END-OF-PERIOD FLOW
    MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS   COMP Q      MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS   COMP Q
```

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	0.30	1	0.00	0.	0.00	13.	1.03	2.30	101	0.	0.	0.	465.
1.01	1.00	2	0.00	0.	0.00	12.	1.03	3.00	102	0.	0.	0.	399.
1.01	1.30	3	0.00	0.	0.00	12.	1.03	3.30	103	0.	0.	0.	342.
1.01	2.00	4	0.00	0.	0.00	11.	1.03	4.00	104	0.	0.	0.	311.
1.01	2.30	5	0.00	0.	0.00	11.	1.03	4.30	105	0.	0.	0.	298.
1.01	3.00	6	0.00	0.	0.00	10.	1.03	5.00	106	0.	0.	0.	286.
1.01	3.30	7	0.00	0.	0.00	10.	1.03	5.30	107	0.	0.	0.	275.
1.01	4.00	8	0.00	0.	0.00	9.	1.03	6.00	108	0.	0.	0.	264.
1.01	4.30	9	0.00	0.	0.00	9.	1.03	6.30	109	0.	0.	0.	254.
1.01	5.00	10	0.00	0.	0.00	9.	1.03	7.00	110	0.	0.	0.	244.
1.01	5.30	11	0.00	0.	0.00	8.	1.03	7.30	111	0.	0.	0.	234.
1.01	6.00	12	0.00	0.	0.00	8.	1.03	8.00	112	0.	0.	0.	225.
1.01	6.30	13	0.01	0.	0.01	8.	1.03	8.30	113	0.	0.	0.	216.
1.01	7.00	14	0.01	0.	0.01	7.	1.03	9.00	114	0.	0.	0.	207.
1.01	7.30	15	0.01	0.	0.01	7.	1.03	9.30	115	0.	0.	0.	199.
1.01	8.00	16	0.01	0.	0.01	7.	1.03	10.00	116	0.	0.	0.	191.
1.01	8.30	17	0.01	0.	0.01	7.	1.03	10.30	117	0.	0.	0.	183.
1.01	9.00	18	0.01	0.	0.01	6.	1.03	11.00	118	0.	0.	0.	176.
1.01	9.30	19	0.01	0.	0.01	6.	1.03	11.30	119	0.	0.	0.	169.
1.01	10.00	20	0.01	0.	0.01	6.	1.03	12.00	120	0.	0.	0.	162.
1.01	10.30	21	0.01	0.	0.01	6.	1.03	12.30	121	0.	0.	0.	156.
1.01	11.00	22	0.01	0.	0.01	5.	1.03	13.00	122	0.	0.	0.	150.
1.01	11.30	23	0.01	0.	0.01	5.	1.03	13.30	123	0.	0.	0.	144.
1.01	12.00	24	0.01	0.	0.01	5.	1.03	14.00	124	0.	0.	0.	138.
1.01	12.30	25	0.06	0.	0.06	5.	1.03	14.30	125	0.	0.	0.	133.
1.01	13.00	26	0.06	0.	0.06	5.	1.03	15.00	126	0.	0.	0.	127.
1.01	13.30	27	0.08	0.	0.08	4.	1.03	15.30	127	0.	0.	0.	122.
1.01	14.00	28	0.08	0.	0.08	4.	1.03	16.00	128	0.	0.	0.	117.
1.01	14.30	29	0.10	0.	0.10	4.	1.03	16.30	129	0.	0.	0.	113.
1.01	15.00	30	0.10	0.	0.10	4.	1.03	17.00	130	0.	0.	0.	108.
1.01	15.30	31	0.12	0.	0.12	4.	1.03	17.30	131	0.	0.	0.	104.
1.01	16.00	32	0.37	0.10	0.27	5.	1.03	18.00	132	0.	0.	0.	100.
1.01	16.30	33	0.09	0.	0.09	8.	1.03	18.30	133	0.	0.	0.	96.
1.01	17.00	34	0.09	0.	0.09	12.	1.03	19.00	134	0.	0.	0.	92.
1.01	17.30	35	0.07	0.	0.07	17.	1.03	19.30	135	0.	0.	0.	88.
1.01	18.00	36	0.07	0.	0.07	22.	1.03	20.00	136	0.	0.	0.	85.
1.01	18.30	37	0.01	0.	0.01	26.	1.03	20.30	137	0.	0.	0.	82.
1.01	19.00	38	0.01	0.	0.01	28.	1.03	21.00	138	0.	0.	0.	78.
1.01	19.30	39	0.01	0.	0.01	28.	1.03	21.30	139	0.	0.	0.	75.
1.01	20.00	40	0.01	0.	0.01	26.	1.03	22.00	140	0.	0.	0.	72.
1.01	20.30	41	0.01	0.	0.01	23.	1.03	22.30	141	0.	0.	0.	69.
1.01	21.00	42	0.01	0.	0.01	20.	1.03	23.00	142	0.	0.	0.	67.
1.01	21.30	43	0.01	0.	0.01	17.	1.03	23.30	143	0.	0.	0.	64.
1.01	22.00	44	0.01	0.	0.01	15.	1.04	0.	144	0.	0.	0.	61.
1.01	22.30	45	0.01	0.	0.01	13.	1.04	0.30	145	0.	0.	0.	59.
1.01	23.00	46	0.01	0.	0.01	11.	1.04	1.00	146	0.	0.	0.	57.
1.01	23.30	47	0.01	0.	0.01	10.	1.04	1.30	147	0.	0.	0.	54.
1.02	0.	48	0.01	0.	0.01	9.	1.04	2.00	148	0.	0.	0.	52.
1.02	0.30	49	0.05	0.	0.05	8.	1.04	2.30	149	0.	0.	0.	50.
1.02	1.00	50	0.05	0.	0.05	7.	1.04	3.00	150	0.	0.	0.	48.
1.02	1.30	51	0.05	0.	0.05	6.	1.04	3.30	151	0.	0.	0.	46.
1.02	2.00	52	0.05	0.	0.05	5.	1.04	4.00	152	0.	0.	0.	44.
1.02	2.30	53	0.05	0.	0.05	5.	1.04	4.30	153	0.	0.	0.	43.
1.02	3.00	54	0.05	0.	0.05	4.	1.04	5.00	154	0.	0.	0.	41.
1.02	3.30	55	0.05	0.	0.05	4.	1.04	5.30	155	0.	0.	0.	39.
1.02	4.00	56	0.05	0.	0.05	3.	1.04	6.00	156	0.	0.	0.	38.
1.02	4.30	57	0.05	0.	0.05	3.	1.04	6.30	157	0.	0.	0.	36.

[illegible]	[illegible]	59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.02	[illegible]	60	0.05	0.	0.05	3.	1.04	8.00	160	0.	0.	0.	32.
1.02	6.30	61	0.15	0.05	0.10	3.	1.04	8.30	161	0.	0.	0.	31.
1.02	7.00	62	0.15	0.05	0.10	5.	1.04	9.00	162	0.	0.	0.	30.
1.02	7.30	63	0.15	0.05	0.10	9.	1.04	9.30	163	0.	0.	0.	28.
1.02	8.00	64	0.15	0.05	0.10	16.	1.04	10.00	164	0.	0.	0.	27.
1.02	8.30	65	0.15	0.05	0.10	26.	1.04	10.30	165	0.	0.	0.	26.
1.02	9.00	66	0.15	0.05	0.10	38.	1.04	11.00	166	0.	0.	0.	25.
1.02	9.30	67	0.15	0.05	0.10	50.	1.04	11.30	167	0.	0.	0.	24.
1.02	10.00	68	0.15	0.05	0.10	63.	1.04	12.00	168	0.	0.	0.	23.
1.02	10.30	69	0.15	0.05	0.10	75.	1.04	12.30	169	0.	0.	0.	22.
1.02	11.00	70	0.15	0.05	0.10	86.	1.04	13.00	170	0.	0.	0.	21.
1.02	11.30	71	0.15	0.05	0.10	94.	1.04	13.30	171	0.	0.	0.	21.
1.02	12.00	72	0.15	0.05	0.10	102.	1.04	14.00	172	0.	0.	0.	20.
1.02	12.30	73	0.84	0.74	0.10	117.	1.04	14.30	173	0.	0.	0.	19.
1.02	13.00	74	0.84	0.74	0.10	153.	1.04	15.00	174	0.	0.	0.	18.
1.02	13.30	75	1.01	0.91	0.10	221.	1.04	15.30	175	0.	0.	0.	17.
1.02	14.00	76	1.01	0.91	0.10	329.	1.04	16.00	176	0.	0.	0.	17.
1.02	14.30	77	1.27	1.17	0.10	481.	1.04	16.30	177	0.	0.	0.	16.
1.02	15.00	78	1.27	1.17	0.10	675.	1.04	17.00	178	0.	0.	0.	15.
1.02	15.30	79	1.54	1.44	0.10	906.	1.04	17.30	179	0.	0.	0.	15.
1.02	16.00	80	4.87	4.77	0.10	1207.	1.04	18.00	180	0.	0.	0.	14.
1.02	16.30	81	1.18	1.08	0.10	1586.	1.04	18.30	181	0.	0.	0.	14.
1.02	17.00	82	1.18	1.08	0.10	1995.	1.04	19.00	182	0.	0.	0.	13.
1.02	17.30	83	0.93	0.83	0.10	2399.	1.04	19.30	183	0.	0.	0.	13.
1.02	18.00	84	0.93	0.83	0.10	2762.	1.04	20.00	184	0.	0.	0.	12.
1.02	18.30	85	0.07	0.	0.07	3031.	1.04	20.30	185	0.	0.	0.	12.
1.02	19.00	86	0.07	0.	0.07	3168.	1.04	21.00	186	0.	0.	0.	11.
1.02	19.30	87	0.07	0.	0.07	3161.	1.04	21.30	187	0.	0.	0.	11.
1.02	20.00	88	0.07	0.	0.07	2998.	1.04	22.00	188	0.	0.	0.	10.
1.02	20.30	89	0.07	0.	0.07	2733.	1.04	22.30	189	0.	0.	0.	10.
1.02	21.00	90	0.07	0.	0.07	2439.	1.04	23.00	190	0.	0.	0.	10.
1.02	21.30	91	0.07	0.	0.07	2138.	1.04	23.30	191	0.	0.	0.	9.
1.02	22.00	92	0.07	0.	0.07	1848.	1.05	0.	192	0.	0.	0.	9.
1.02	22.30	93	0.07	0.	0.07	1586.	1.05	0.30	193	0.	0.	0.	8.
1.02	23.00	94	0.07	0.	0.07	1361.	1.05	1.00	194	0.	0.	0.	8.
1.02	23.30	95	0.07	0.	0.07	1167.	1.05	1.30	195	0.	0.	0.	8.
1.03	0.	96	0.07	0.	0.07	1001.	1.05	2.00	196	0.	0.	0.	7.
1.03	0.30	97	0.	0.	0.	859.	1.05	2.30	197	0.	0.	0.	7.
1.03	1.00	98	0.	0.	0.	737.	1.05	3.00	198	0.	0.	0.	7.
1.03	1.30	99	0.	0.	0.	632.	1.05	3.30	199	0.	0.	0.	7.
1.03	2.00	100	0.	0.	0.	542.	1.05	4.00	200	0.	0.	0.	6.
									SUM	21.58	16.40	5.19	52239.
										(548.)	(416.)	(132.)	(1479.24)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3168.	2521.	98?.	359.	52226.
CMS	90.	71.	28.	10.	1479.
INCHES		10.71	16.?7	18.32	18.49
MM		272.02	425.?6	465.38	469.56
AC-FT		1250.	195?.	2139.	2158.
THOUS CU M		1542.	241?.	2638.	2662.

HYDROGRAPH AT STA BASIN FOR PLAN 1, RTIO 1

3.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	2.	2.	3.	4.	5.	6.	6.	5.

6

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.	1.	1.
1.	1.	2.	3.	5.	8.	10.	13.	15.	17.
19.	20.	23.	31.	44.	66.	96.	135.	181.	241.
317.	399.	480.	552.	606.	634.	632.	600.	547.	488.
428.	370.	317.	272.	233.	200.	172.	147.	126.	108.
93.	80.	68.	62.	60.	57.	55.	53.	51.	49.
47.	45.	43.	41.	40.	38.	37.	35.	34.	32.
31.	30.	29.	28.	27.	25.	24.	23.	23.	22.
21.	20.	19.	18.	18.	17.	16.	16.	15.	14.
14.	13.	13.	12.	12.	11.	11.	10.	10.	10.
9.	9.	9.	8.	8.	8.	7.	7.	7.	6.
6.	6.	6.	5.	5.	5.	5.	5.	4.	4.
4.	4.	4.	4.	3.	3.	3.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	1.	1.	1.	1.	1.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	634.	504.	19[illegible].	72.	10445.
CMS	18.	14.	[illegible].	2.	296.
INCHES		2.14	3.[illegible]5	3.66	3.70
MM		54.40	85.[illegible]7	93.08	93.91
AC-FT		250.	39[illegible].	428.	432.
THOUS CU M		308.	48[illegible].	528.	532.

HYDROGRAPH AT STA BASIN FOR PLAN 1, RTIO 2

3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	2.	3.	4.	5.	5.	6.	6.	5.
5.	4.	4.	3.	3.	2.	2.	2.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	2.	3.	5.	8.	11.	13.	16.	18.
20.	21.	24.	32.	47.	69.	101.	142.	150.	253.
333.	419.	504.	580.	637.	665.	664.	630.	574.	512.
449.	388.	333.	286.	245.	210.	180.	155.	133.	114.
98.	84.	72.	65.	63.	60.	58.	55.	53.	51.
49.	47.	45.	43.	42.	40.	39.	37.	36.	34.
33.	31.	30.	29.	28.	27.	26.	25.	24.	23.
22.	21.	20.	19.	19.	18.	17.	16.	16.	15.
15.	14.	13.	13.	12.	12.	11.	11.	11.	10.
10.	9.	9.	9.	8.	8.	8.	7.	7.	7.
6.	6.	6.	6.	6.	5.	5.	5.	5.	4.
4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
3.	3.	3.	3.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	1.	1.	1.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	665.	529.	207.	75.	10967.
CMS	19.	15.	6.	2.	311.
INCHES		2.25	3.52	3.85	3.88
MM		57.12	89.43	97.73	98.61
AC-FT		263.	411.	449.	453.
THOUS CU M		324.	507.	554.	559.

HYDROGRAPH AT STA BASIN FOR PLAN 1, RTIO 3

3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

PLAN 1
RATIO 7

3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	4.	6.	9.	11.	13.	14.	14.	15.
11.	10.	9.	7.	6.	6.	5.	4.	4.	3.

3.	3.	2.	2.	2.	2.	2.	1.	1.	1.
1.	2.	5.	8.	13.	19.	25.	32.	38.	43.
47.	51.	58.	77.	111.	165.	240.	337.	453.	604.
793.	997.	1199.	1381.	1515.	1584.	1580.	1499.	1366.	1219.
1069.	924.	792.	680.	584.	501.	429.	368.	316.	271.
232.	199.	171.	155.	149.	143.	138.	132.	127.	122.
117.	112.	108.	104.	99.	95.	92.	88.	85.	81.
78.	75.	72.	69.	66.	64.	61.	59.	56.	54.
52.	50.	48.	46.	44.	42.	41.	39.	38.	36.
35.	33.	32.	31.	29.	28.	27.	26.	25.	24.
23.	22.	21.	20.	20.	19.	18.	17.	17.	16.
15.	15.	14.	14.	13.	13.	12.	12.	11.	11.
10.	10.	9.	9.	9.	8.	8.	8.	7.	7.
7.	7.	6.	6.	6.	6.	5.	5.	5.	5.
5.	4.	4.	4.	4.	4.	4.	3.	3.	3.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1584.	1261.	49[illegible].	180.	26113.
CMS	45.	36.	14.	5.	739.
INCHES		5.35	8.[illegible]8	9.16	9.24
MM		136.01	212.93	232.69	234.78
AC-FT		625.	979.	106[illegible].	1079.
THOUS CU M		771.	1207.	1319.	1331.

HYDROGRAPH AT STA BASIN FOR PLAN 1, RTIO 8

13.	12.	12.	11.	11.	10.	10.	9.	9.	9.
8.	8.	8.	7.	7.	7.	7.	6.	6.	6.
6.	5.	5.	5.	5.	5.	4.	4.	4.	4.
4.	5.	8.	12.	17.	22.	26.	28.	28.	26.
23.	20.	17.	15.	13.	11.	10.	9.	8.	7.
6.	5.	5.	4.	4.	3.	3.	3.	3.	3.
3.	5.	9.	16.	26.	38.	50.	63.	75.	86.
94.	102.	117.	153.	221.	329.	481.	675.	906.	1207.
1586.	1995.	2395.	2762.	3031.	3168.	3161.	2998.	2733.	2439.
2138.	1848.	1586.	1361.	1167.	1001.	859.	737.	632.	542.
465.	399.	342.	311.	298.	286.	275.	264.	254.	244.
234.	225.	216.	207.	199.	191.	183.	176.	169.	162.
156.	150.	144.	138.	133.	127.	122.	117.	113.	108.
104.	100.	96.	92.	88.	85.	82.	78.	75.	72.
69.	67.	64.	61.	59.	57.	54.	52.	50.	48.
46.	44.	43.	41.	39.	38.	36.	35.	33.	32.
31.	30.	28.	27.	26.	25.	24.	23.	22.	21.
21.	20.	19.	18.	17.	17.	16.	15.	15.	14.
14.	13.	13.	12.	12.	11.	11.	10.	10.	10.
9.	9.	8.	8.	8.	7.	7.	7.	7.	6.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3168.	2521.	981.	359.	52226.
CMS	90.	71.	28.	10.	1479.
INCHES		10.71	16.77	18.32	18.49
MM		272.02	425.66	465.38	469.56
AC-FT		1250.	1957.	2139.	2158.
THOUS CU M		1542.	2414.	2638.	2662.

8

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HYDROGRAPH ROUTING

ROUTED OUTFLOW - DAM - SPILLWAY ELEV 263-USGS FLASHBOARDS OUT[redacted]

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
DAM	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.	0.	0.	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.	0.	0.	-263.	-1

STAGE	263.00	263.10	263.20	263.50	264.00	264.50	264.59	265.00	265.50	266.00
	266.50	266.85	267.00	268.00	268.50					
FLOW	0.	4.50	13.90	55.00	156.00	289.00	316.00	320.00	324.00	327.00
	330.00	332.00	333.00	340.00	343.00					

CAPACITY=	201.	322.
ELEVATION=	263.	269.

CREL	SPWID	COQW	EXPW	ELEVL	COOL	CAREA	EXPL
263.0	0.	0.	0.	0.	0.	0.	0.

DAM DATA

TOPEL	COQD	EXPD	DAMWID
268.5	2.5	1.5	380.

STATION DAM, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	2.	2.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
1.	1.	1.	1.	2.	2.	3.	3.	4.	6.
8.	9.	11.	14.	19.	27.	40.	58.	90.	128.
182.	252.	317.	320.	324.	327.	331.	334.	337.	340.
341.	342.	342.	341.	340.	339.	337.	334.	332.	329.
327.	324.	321.	316.	212.	152.	121.	100.	84.	73.
65.	59.	54.	52.	49.	47.	45.	43.	41.	39.
37.	36.	34.	33.	32.	30.	29.	28.	27.	26.
25.	24.	23.	22.	21.	20.	19.	19.	18.	17.
16.	16.	15.	15.	14.	14.	13.	13.	12.	12.
12.	11.	11.	10.	10.	10.	9.	9.	9.	8.
8.	8.	7.	7.	7.	7.	6.	6.	6.	6.
5.	5.	5.	5.	5.	5.	4.	4.	4.	4.
4.	4.	4.	4.	4.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	2.	2.	2.	2.	2.

STORAGE

201.	201.	201.	201.	201.	201.	201.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

202.	202.	202.	202.	202.	202.	202.	203.	203.	203.
204.	204.	205.	205.	206.	208.	210.	212.	216.	220.
225.	231.	237.	246.	256.	268.	281.	293.	302.	310.
315.	317.	317.	315.	311.	306.	300.	293.	285.	276.
267.	257.	246.	236.	228.	223.	219.	217.	215.	214.
213.	212.	212.	211.	211.	211.	210.	210.	210.	209.
209.	209.	209.	208.	208.	208.	208.	208.	207.	207.
207.	207.	207.	207.	207.	206.	206.	206.	206.	206.
206.	206.	206.	206.	205.	205.	205.	205.	205.	205.
205.	205.	205.	205.	204.	204.	204.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	203.	203.	203.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.
203.	203.	203.	203.	203.	203.	203.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.2	263.2	263.2	263.2	263.3	263.4	263.5	263.7	263.9
264.1	264.4	264.7	265.0	265.5	266.1	266.6	267.2	267.6	267.9
268.2	268.3	268.3	268.2	268.0	267.8	267.5	267.2	266.8	266.4
266.0	265.5	265.1	264.6	264.2	264.0	263.8	263.7	263.6	263.6
263.6	263.5	263.5	263.5	263.5	263.4	263.4	263.4	263.4	263.4
263.4	263.4	263.3	263.3	263.3	263.3	263.3	263.3	263.3	263.3
263.3	263.3	263.3	263.3	263.3	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.0	263.0	263.0	263.0

PEAK OUTFLOW IS 342. AT TIME 46.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	342.	338.	196.	72.	10425.
CMS	10.	10.	6.	2.	295.
INCHES		1.44	3.33	3.65	3.69
MM		36.48	84.66	92.90	93.73
AC-FT		168.	389.	427.	431.
THOUS CU M		207.	480.	527.	531.

STATION DAM, PLAN 1, RATIO 2

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	2.	3.	3.

10

3.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	2.	2.	2.	3.	4.	5.	6.
8.	10.	12.	15.	20.	29.	42.	62.	95.	135.

193.	266.	317.	321.	325.	329.	332.	337.	340.	342.
379.	406.	375.	344.	342.	341.	339.	337.	334.	332.
329.	327.	324.	320.	298.	203.	147.	119.	98.	83.
73.	65.	55.	55.	52.	49.	47.	45.	43.	41.
39.	38.	36.	35.	33.	32.	31.	29.	28.	27.
26.	25.	24.	23.	22.	21.	20.	20.	19.	18.
17.	17.	16.	15.	15.	14.	14.	13.	13.	12.
12.	12.	11.	11.	11.	10.	10.	9.	9.	9.
8.	8.	8.	7.	7.	7.	7.	6.	6.	6.
6.	5.	5.	5.	5.	5.	5.	5.	4.	4.
4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	2.	2.	2.	2.

STORAGE

201.	201.	201.	201.	201.	201.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	201.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	203.	203.	204.
204.	204.	205.	206.	206.	208.	210.	213.	216.	221.
226.	232.	235.	248.	260.	273.	287.	300.	311.	319.
324.	325.	324.	322.	319.	314.	308.	301.	293.	285.
275.	266.	255.	245.	235.	227.	222.	219.	217.	215.
214.	213.	212.	212.	211.	211.	211.	210.	210.	210.
209.	209.	209.	209.	209.	208.	208.	208.	208.	208.
207.	207.	207.	207.	207.	207.	206.	206.	206.	206.
206.	206.	206.	206.	206.	205.	205.	205.	205.	205.
205.	205.	205.	205.	205.	204.	204.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	203.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.
203.	203.	203.	203.	203.	203.	203.	203.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.2	263.2	263.2	263.2	263.3	263.4	263.5	263.7	263.9
264.1	264.4	264.7	265.2	265.7	266.3	266.9	267.5	268.0	268.4
268.6	268.7	268.6	268.5	268.4	268.1	267.9	267.6	267.2	266.8
266.4	265.9	265.5	265.0	264.5	264.2	264.0	263.8	263.7	263.6
263.6	263.5	263.5	263.5	263.5	263.5	263.4	263.4	263.4	263.4
263.4	263.4	263.4	263.4	263.3	263.3	263.3	263.3	263.3	263.3
263.3	263.3	263.3	263.3	263.3	263.3	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.0	263.0	263.0

PLAN 1
RATIO 2

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INCHES		[illegible]	4.17	4.57	4.61
MM		49.03	[illegible]	116.19	117.16
AC-FT		225.	[illegible]	534.	538.
THOUS CU M		278.	600.	658.	664.

STATION DAM, PLAN 1, RATIO 7

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

1.	1.	1.	2.	2.	2.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	4.	5.	6.	7.	8.
9.	9.	9.	9.	8.	8.	8.	7.	7.	6.
6.	5.	5.	5.	4.	4.	4.	4.	4.	3.
3.	3.	3.	3.	4.	5.	8.	11.	15.	21.
26.	31.	37.	44.	55.	81.	120.	178.	265.	319.
324.	331.	340.	984.	1519.	1555.	1587.	1531.	1414.	1272.
1126.	982.	845.	732.	633.	548.	475.	415.	366.	343.
342.	340.	338.	336.	334.	331.	329.	327.	325.	322.
319.	301.	224.	177.	148.	132.	120.	110.	103.	96.
91.	86.	82.	78.	75.	72.	69.	66.	63.	61.
58.	56.	54.	52.	51.	49.	47.	46.	44.	42.
41.	39.	38.	36.	35.	34.	32.	31.	30.	29.
27.	26.	25.	24.	23.	22.	22.	21.	20.	19.
18.	18.	17.	16.	16.	15.	14.	14.	13.	13.
13.	12.	12.	11.	11.	11.	10.	10.	10.	9.
9.	9.	8.	8.	8.	7.	7.	7.	6.	6.
6.	6.	6.	5.	5.	5.	5.	5.	5.	4.

STORAGE

201.	201.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	203.	203.	203.	203.	203.	203.	203.	203.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	203.	203.	203.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.
202.	202.	202.	203.	203.	203.	204.	205.	206.	206.
207.	208.	209.	210.	212.	215.	219.	225.	232.	242.

257.	281.	312.	338.	346.	347.	347.	347.	345.	343.
341.	338.	336.	334.	332.	330.	328.	326.	324.	321.
318.	312.	306.	299.	291.	284.	276.	268.	260.	251.
243.	235.	229.	225.	222.	220.	219.	218.	217.	217.
216.	215.	215.	215.	214.	214.	214.	213.	213.	213.
212.	212.	212.	212.	211.	211.	211.	211.	210.	210.
210.	209.	209.	209.	209.	209.	208.	208.	208.	208.
208.	207.	207.	207.	207.	207.	207.	206.	206.	206.
206.	206.	206.	206.	206.	206.	205.	205.	205.	205.
205.	205.	205.	205.	205.	205.	205.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	[illegible]

263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1

PEAK OUTFLOW IS 1587. AT TIME 43.50 HOURS

PLAN 1
RATIO 7

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1587.	1170.	492.	180.	26071.
CMS	45.	33.	14.	5.	738.
INCHES		4.97	8.35	9.15	9.23
MM		126.20	212.21	232.44	234.40
AC-FT		580.	975.	1068.	1077.
THOUS CU M		715.	1203.	1318.	1329.

STATION DAM, PLAN 1, RATIO 8

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

1.	2.	3.	4.	4.	5.	6.	6.	7.	7.
7.	7.	8.	8.	7.	7.	7.	7.	7.	7.
7.	7.	6.	6.	6.	6.	6.	5.	5.	5.
5.	5.	5.	6.	7.	5.	11.	14.	17.	19.
20.	20.	20.	19.	18.	17.	15.	14.	13.	12.
11.	10.	10.	9.	8.	7.	7.	6.	6.	5.
5.	5.	5.	6.	8.	12.	19.	27.	37.	47.
57.	70.	83.	99.	127.	179.	269.	320.	326.	334.
623.	1953.	2260.	2673.	2966.	3143.	3171.	3050.	2807.	2519.
2223.	1934.	1667.	1434.	1235.	1064.	917.	791.	683.	590.
511.	445.	390.	353.	343.	342.	342.	341.	340.	339.
337.	336.	334.	333.	331.	330.	328.	327.	325.	323.
320.	317.	274.	221.	187.	164.	150.	140.	132.	125.
119.	114.	109.	104.	100.	95.	92.	88.	84.	81.
78.	75.	72.	69.	66.	63.	61.	58.	56.	54.
53.	51.	45.	48.	46.	44.	43.	41.	35.	38.
36.	35.	34.	32.	31.	30.	29.	28.	26.	25.
24.	23.	22.	22.	21.	20.	19.	18.	18.	17.
16.	16.	15.	14.	14.	13.	13.	13.	12.	12.
11.	11.	11.	10.	10.	10.	9.	9.	9.	8.

STORAGE

201.	202.	202.	203.	203.	203.	203.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
204.	204.	204.	203.	203.	203.	203.	203.	203.	203.
203.	203.	203.	203.	204.	204.	205.	205.	206.	206.
206.	206.	206.	206.	206.	206.	206.	205.	205.	205.
205.	205.	204.	204.	204.	204.	204.	203.	203.	203.
203.	203.	203.	204.	204.	205.	206.	208.	209.	211.
212.	214.	215.	217.	220.	225.	232.	244.	263.	253.
331.	352.	356.	361.	364.	366.	366.	365.	362.	359.
355.	352.	348.	345.	342.	340.	337.	335.	333.	331.
329.	327.	325.	323.	321.	319.	317.	314.	310.	307.
302.	298.	293.	288.	283.	277.	271.	265.	259.	252.
246.	239.	233.	228.	225.	224.	222.	221.	220.	220.
219.	218.	218.	217.	217.	216.	216.	216.	215.	215.
214.	214.	214.	213.	213.	213.	213.	212.	212.	212.
212.	211.	211.	211.	211.	210.	210.	210.	209.	209.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53.	51.	49.	48.	46.	44.	43.	41.	39.	38.
35.	35.	34.	32.	31.	30.	29.	28.	26.	25.
24.	23.	22.	22.	21.	20.	19.	18.	18.	17.
16.	16.	15.	14.	14.	13.	13.	13.	12.	12.
11.	11.	11.	10.	10.	10.	9.	9.	9.	8.

STORAGE

201.	202.	202.	203.	203.	203.	203.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
204.	204.	204.	203.	203.	203.	203.	203.	203.	203.
203.	203.	202.	203.	204.	204.	205.	205.	206.	206.
206.	206.	206.	206.	206.	206.	206.	205.	205.	205.
205.	205.	204.	204.	204.	204.	204.	203.	203.	203.
203.	203.	203.	204.	204.	205.	206.	208.	209.	211.
212.	214.	215.	217.	220.	225.	232.	244.	263.	293.
331.	352.	356.	361.	364.	366.	366.	365.	362.	359.
355.	352.	348.	345.	342.	340.	337.	335.	333.	331.
329.	327.	325.	323.	321.	319.	317.	314.	310.	307.
302.	298.	293.	288.	283.	277.	271.	265.	259.	252.
246.	239.	233.	228.	226.	224.	222.	221.	220.	220.
219.	218.	218.	217.	217.	216.	216.	216.	215.	215.
214.	214.	214.	213.	213.	213.	213.	212.	212.	212.
212.	211.	211.	211.	211.	210.	210.	210.	209.	209.
209.	209.	209.	208.	208.	208.	208.	208.	207.	207.
207.	207.	207.	207.	206.	206.	206.	206.	206.	206.
206.	206.	206.	205.	205.	205.	205.	205.	205.	205.
205.	205.	205.	205.	204.	204.	204.	204.	204.	204.

STAGE

263.0	263.0	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.3	263.4	263.4
263.5	263.6	263.6	263.7	263.9	264.1	264.4	265.0	265.8	267.2
268.9	269.5	270.0	270.3	270.4	270.5	270.5	270.4	270.3	270.2
270.0	269.9	269.7	269.6	269.4	269.3	269.2	269.1	269.0	268.5
268.8	268.7	268.6	268.5	268.5	268.4	268.3	268.1	268.0	267.8
267.6	267.4	267.2	267.0	266.7	266.5	266.2	265.9	265.6	265.3
265.0	264.7	264.4	264.2	264.1	264.0	264.0	263.9	263.9	263.8
263.8	263.8	263.8	263.7	263.7	263.7	263.7	263.7	263.6	263.6
263.6	263.6	263.6	263.6	263.6	263.5	263.5	263.5	263.5	263.5
263.5	263.5	263.5	263.4	263.4	263.4	263.4	263.4	263.4	263.4
263.4	263.4	263.3	263.3	263.3	263.3	263.3	263.3	263.3	263.3
263.3	263.3	263.3	263.3	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.1	263.1	263.1	263.1

PEAK OUTFLOW IS 3171. AT TIME 43.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3171.	2509.	981.	359.	52165.
CMS	90.	71.	28.	10.	1477.
INCHES		10.66	16.68	18.31	18.46
MM		270.67	423.55	465.07	469.01
AC-FT		1244.	1947.	2137.	2156.
THOUS CU M		1534.	2401.	2637.	2659.

MM	270.67	423.55	465.07	469.01
AC-FT	1244.	1947.	2137.	2156.
THOUS CU M	1534.	2401.	2637.	2659.

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HYDROGRAPH ROUTING

REACH 1 DAM TO 210

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
32K	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.	0.	0.	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.	0.	0.	0.	0

NORMAL DEPTH CHANNEL ROUTING

QN(1)	QN(2)	QN(3)	ELNVT	ELMAX	RLNTH	SEL
0.0400	0.0400	0.0400	210.0	220.0	3200.	0.00810

CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC
20.00 219.00 50.00 213.00 150.00 212.00 150.00 210.00 165.00 210.00
165.00 212.00 265.00 213.00 295.00 219.00

STORAGE	0.	0.58	1.16	1.74	2.40	5.83	13.15	21.63	30.31	39.19
	48.28	57.57	67.06	76.76	36.66	96.76	107.07	117.58	128.21	138.84
OUTFLOW	0.	16.49	50.18	94.79	149.07	277.48	624.39	1260.50	2104.40	3135.65
	4341.95	5714.83	7248.36	8938.16	10780.95	12774.26	14916.23	17205.48	19839.00	22646.21
STAGE	210.00	210.53	211.05	211.58	212.11	212.63	213.16	213.68	214.21	214.74
	215.26	215.79	216.32	216.84	217.37	217.89	218.42	218.95	219.47	220.00
FLOW	0.	16.49	50.18	94.79	149.07	277.48	624.39	1260.50	2104.40	3135.65
	4341.95	5714.83	7248.36	8938.16	10780.95	12774.26	14916.23	17205.48	19839.00	22646.21

STATION 32K, PLAN 1, RTIO 1

OUTFLOW

0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	2.	2.	2.	3.	4.	5.
6.	8.	10.	12.	15.	22.	34.	50.	79.	116.
160.	210.	275.	318.	322.	32[illegible].	329.	332.	336.	338.
340.	341.	342.	341.	341.	339.	338.	335.	333.	331.
328.	326.	322.	318.	266.	192.	141.	103.	89.	76.
68.	61.	56.	52.	50.	48.	46.	44.	42.	40.

328.	326.	322.	318.	266.	192.	141.	103.	89.	76.
68.	61.	56.	52.	50.	[illegible]	46.	44.	42.	40.
38.	37.	35.	34.	32.	31.	30.	28.	27.	26.
25.	24.	23.	22.	21.	21.	20.	19.	18.	17.
17.	16.	16.	15.	14.	14.	14.	13.	13.	12.
12.	12.	11.	11.	10.	10.	10.	9.	9.	9.
8.	8.	8.	7.	7.	7.	7.	6.	6.	6.
6.	5.	5.	5.	5.	5.	5.	4.	4.	4.
4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	2.	2.	2.	2.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	2.	2.
3.	4.	6.	7.	7.	7.	7.	7.	7.	7.
7.	7.	7.	7.	7.	7.	7.	7.	7.	7.
7.	7.	7.	7.	6.	4.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.0	210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1	210.1
210.2	210.3	210.3	210.4	210.5	210.6	210.8	211.0	211.4	211.8
212.2	212.4	212.6	212.7	212.7	212.7	212.7	212.7	212.7	212.7
212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7
212.7	212.7	212.7	212.7	212.6	212.3	212.0	211.7	211.5	211.4
211.3	211.2	211.1	211.1	211.0	211.0	211.0	210.9	210.9	210.9
210.9	210.8	210.8	210.8	210.8	210.8	210.7	210.7	210.7	210.7
210.7	210.6	210.6	210.6	210.6	210.6	210.6	210.6	210.6	210.5
210.5	210.5	210.5	210.5	210.5	210.4	210.4	210.4	210.4	210.4
210.4	210.4	210.4	210.3	210.3	210.3	210.3	210.3	210.3	210.3
210.3	210.3	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.2	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1

STA 32K

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	342.	338.	196.	72.	10423.
CMS	10.	10.	6.	2.	295.
INCHES		1.44	3.33	3.66	3.69

210.1 210.1

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	342.	338.	196.	72.	10423.
CMS	10.	10.	6.	2.	295.
INCHES		1.44	3.33	3.66	3.69
MM		36.47	84.66	92.90	93.71
AC-FT		168.	389.	427.	431.
THOUS CU M		207.	430.	527.	531.

MAXIMUM STORAGE = 7.

MAXIMUM STAGE IS 212.7

STATION 32K, PLAN 1, RTIO 2

OUTFLOW

0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	1.	1.	1.	2.	2.	2.	3.	4.	5.
7.	8.	10.	13.	16.	25.	36.	54.	84.	123.
167.	222.	284.	319.	323.	327.	331.	334.	338.	341.
360.	392.	391.	360.	343.	342.	340.	339.	336.	333.
331.	328.	325.	322.	309.	254.	185.	136.	101.	88.
76.	67.	61.	56.	53.	50.	48.	46.	44.	42.
40.	38.	37.	35.	34.	32.	31.	30.	29.	28.
26.	25.	24.	23.	22.	22.	21.	20.	19.	18.
18.	17.	16.	16.	15.	15.	14.	14.	13.	13.
12.	12.	12.	11.	11.	10.	10.	10.	9.	9.
9.	8.	8.	8.	7.	7.	7.	7.	6.	6.
6.	6.	5.	5.	5.	5.	5.	5.	5.	4.
4.	4.	4.	4.	4.	4.	4.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	2.	2.	2.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	2.	2.
3.	4.	8.	7.	7.	7.	7.	7.	7.	7.
8.	8.	8.	8.	7.	7.	7.	7.	7.	7.
7.	7.	7.	7.	7.	5.	3.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
210.0	210.0	210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1	210.1	210.2
210.2	210.3	210.3	210.4	210.5	210.7	210.8	211.1	211.5	211.9
212.2	212.4	212.6	212.7	212.7	212.7	212.7	212.7	212.7	212.7

212.8	212.8	212.8	212.8	212.7	212.7	212.7	212.7	212.7	212.7
212.7	212.7	[illegible]	212.7	212.7	212.5	212.3	212.0	211.6	211.5
211.4	211.3	211.2	211.1	211.1	211.1	211.0	211.0	211.0	210.9
210.9	210.9	210.8	210.8	210.8	210.8	210.8	210.7	210.7	210.7
210.7	210.7	210.6	210.6	210.6	210.6	210.6	210.6	210.6	210.6
210.5	210.5	210.5	210.5	210.5	210.5	210.4	210.4	210.4	210.4
210.4	210.4	210.4	210.4	210.3	210.3	210.3	210.3	210.3	210.3
210.3	210.3	210.3	210.2	210.2	210.2	210.2	210.2	210.2	210.2
210.2	210.2	[illegible]	210.2	210.2	210.2	210.2	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	392.	351.	206.	75.	10944.
CMS	11.	10.	6.	2.	310.
INCHES		1.49	3.50	3.84	3.87
MM		37.89	88.90	97.55	98.40
AC-FT		174.	409.	448.	452.
THOUS CU M		215.	504.	553.	558.

MAXIMUM STORAGE = 8.

MAXIMUM STAGE IS 212.8

STATION 32K, PLAN 1, RTIO 3

OUTFLOW

0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	2.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	3.	4.	5.
7.	9.	11.	14.	18.	27.	38.	57.	85.	130.
174.	234.	292.	320.	324.	328.	332.	337.	341.	355.
471.	471.	422.	374.	348.	342.	341.	339.	336.	324.
331.	327.	326.	323.	319.	274.	206.	153.	109.	54.
81.	71.	64.	59.	55.	52.	50.	48.	46.	44.
42.	40.	38.	37.	35.	34.	33.	31.	30.	29.
28.	27.	26.	24.	24.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

STATION 32K, PLAN 1, RTIO 7

PLAN 1
RATIO 7

OUTFLOW

0.	1.	1.	2.	2.	2.	2.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	4.	5.	6.	7.
8.	9.	9.	9.	9.	8.	8.	8.	7.	7.
6.	6.	5.	5.	5.	4.	4.	4.	4.	4.
3.	3.	3.	3.	4.	4.	6.	8.	12.	16.
24.	29.	34.	41.	50.	72.	107.	157.	213.	282.
321.	327.	335.	666.	1389.	1587.	1566.	1556.	1444.	1309.
1171.	1028.	891.	769.	664.	584.	512.	446.	391.	355.
342.	341.	339.	337.	335.	333.	330.	328.	326.	324.
321.	310.	265.	208.	168.	142.	122.	113.	105.	98.
93.	88.	83.	80.	76.	73.	70.	67.	64.	62.
59.	57.	55.	53.	51.	50.	48.	46.	45.	43.
41.	40.	38.	37.	35.	34.	33.	31.	30.	29.
28.	27.	26.	25.	24.	23.	22.	21.	20.	19.
19.	18.	17.	16.	16.	15.	15.	14.	14.	13.
13.	13.	12.	12.	11.	11.	11.	10.	10.	10.
9.	9.	8.	8.	8.	8.	7.	7.	7.	6.
6.	6.	6.	5.	5.	5.	5.	5.	5.	5.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
1.	1.	1.	1.	1.	1.	2.	3.	4.	6.
7.	7.	7.	14.	23.	25.	25.	25.	24.	22.
20.	19.	17.	15.	14.	12.	11.	9.	8.	7.
7.	7.	7.	7.	7.	7.	7.	7.	7.	7.
7.	7.	5.	4.	3.	2.	2.	2.	2.	2.
2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.2	210.2	210.2
210.3	210.3	210.3	210.3	210.3	210.3	210.3	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.2	210.3	210.4	210.5
210.6	210.7	210.8	210.9	211.1	211.3	211.7	212.1	212.4	212.6
212.7	212.7	212.7	213.2	213.8	213.9	213.9	213.9	213.8	213.7
213.6	213.5	213.4	213.3	213.2	213.1	213.0	212.9	212.8	212.7
212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7
212.7	212.7	212.6	212.3	212.2	212.0	211.8	211.8	211.7	[illegible]

STAGE

210.0	210.0	210.0	210.0	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.1	210.2	210.2	210.2
210.3	210.3	210.3	210.3	210.3	210.3	210.3	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.1	210.1	210.1	210.1	210.1	210.1
210.1	210.1	210.1	210.1	210.1	210.1	210.2	210.3	210.4	210.5
210.6	210.7	210.8	210.9	211.1	211.3	211.7	212.1	212.4	212.6
212.7	212.7	212.7	213.2	213.8	213.9	213.9	213.9	213.8	213.7
213.6	213.5	213.4	213.3	213.2	213.1	213.0	212.9	212.8	212.7
212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7	212.7
212.7	212.7	212.6	212.3	212.2	212.0	211.8	211.8	211.7	211.6
211.6	211.5	211.4	211.4	211.4	211.3	211.3	211.2	211.2	211.2
211.2	211.1	211.1	211.1	211.1	211.0	211.0	211.0	211.0	210.9
210.9	210.9	210.9	210.8	210.8	210.8	210.8	210.8	210.7	210.7
210.7	210.7	210.7	210.7	210.6	210.6	210.6	210.6	210.6	210.6
210.6	210.5	210.5	210.5	210.5	210.5	210.5	210.5	210.4	210.4
210.4	210.4	210.4	210.4	210.4	210.4	210.3	210.3	210.3	210.3
210.3	210.3	210.3	210.3	210.3	210.2	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.1	210.1

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1587.	1167.	492.	180.	26067.
CMS	45.	33.	14.	5.	738.
INCHES		4.96	8.35	9.15	9.23
MM		125.87	212.19	232.43	234.36
AC-FT		578.	975.	1068.	1077.
THOUS CU M		714.	1203.	1318.	1329.

MAXIMUM STORAGE = 25.

MAXIMUM STAGE IS 213.9

STATION 32K, PLAN 1, RTIO 8

OUTFLOW

1.	1.	2.	3.	4.	4.	5.	6.	6.	7.
7.	7.	7.	8.	8.	7.	7.	7.	7.	7.
7.	7.	6.	6.	6.	6.	6.	6.	5.	5.
5.	5.	5.	5.	6.	6.	10.	12.	14.	17.
20.	20.	20.	19.	18.	17.	16.	15.	14.	13.
12.	11.	10.	9.	9.	8.	7.	7.	6.	6.
5.	5.	5.	5.	7.	9.	14.	22.	33.	43.
53.	66.	79.	94.	118.	158.	216.	285.	322.	330.
477.	1445.	2341.	2518.	2944.	3100.	3182.	3079.	2866.	2579.
2285.	1959.	1734.	1489.	1283.	1119.	963.	830.	716.	620.
551.	479.	418.	372.	348.	343.	342.	341.	340.	339.
338.	337.	335.	334.	332.	331.	329.	327.	326.	324.
322.	319.	296.	251.	210.	180.	160.	146.	134.	128.
121.	115.	110.	105.	101.	97.	93.	89.	85.	82.
79.	76.	73.	70.	67.	64.	62.	59.	57.	55.
53.	51.	50.	48.	47.	45.	43.	42.	40.	39.
37.	36.	34.	33.	32.	30.	29.	28.	27.	26.
25.	24.	23.	22.	21.	20.	19.	19.	18.	17.
17.	16.	16.	15.	14.	14.	13.	13.	13.	12.
12.	11.	11.	11.	10.	10.	10.	9.	9.	9.

STOR

STATICN 32K, PLA 1, RTIO 8

CUTFLOW

1.	1.	2.	3.	4.	4.	5.	6.	6.	7.
7.	7.	7.	8.	8.	7.	7.	7.	7.	7.
7.	7.	6.	6.	6.	6.	6.	6.	5.	5.
5.	5.	5.	5.	6.	8.	10.	12.	14.	17.
20.	20.	20.	19.	18.	17.	16.	15.	14.	13.
12.	11.	10.	9.	9.	8.	7.	7.	6.	6.
5.	5.	5.	5.	7.	9.	14.	22.	33.	43.
53.	66.	75.	94.	113.	158.	216.	285.	322.	330.
477.	1445.	2341.	2518.	2944.	3100.	3182.	3079.	2866.	2579.
2285.	1999.	1734.	1489.	1283.	1119.	963.	830.	716.	620.
551.	479.	418.	372.	348.	343.	342.	341.	340.	339.
338.	337.	335.	334.	332.	331.	329.	327.	326.	324.
322.	319.	296.	251.	210.	180.	160.	146.	134.	128.
121.	115.	110.	105.	101.	97.	93.	89.	85.	82.
79.	76.	73.	70.	67.	64.	62.	59.	57.	55.
53.	51.	50.	48.	47.	45.	43.	42.	40.	39.
37.	36.	34.	33.	32.	30.	29.	28.	27.	26.
25.	24.	23.	22.	21.	20.	19.	19.	18.	17.
17.	16.	16.	15.	14.	14.	13.	13.	13.	12.
12.	11.	11.	11.	10.	10.	10.	9.	9.	9.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	2.	2.	2.	3.	4.	6.	7.	7.
10.	24.	32.	34.	38.	39.	40.	39.	37.	34.
32.	29.	26.	24.	22.	20.	18.	16.	14.	13.
12.	10.	9.	8.	7.	7.	7.	7.	7.	7.
7.	7.	7.	7.	7.	7.	7.	7.	7.	7.
7.	7.	6.	5.	4.	3.	3.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

210.0	210.0	210.1	210.1	210.1	210.1	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.2	210.3	210.4	210.5	210.5
210.6	210.6	210.6	210.6	210.6	210.5	210.5	210.5	210.4	210.4
210.4	210.4	210.3	210.3	210.3	210.3	210.2	210.2	210.2	210.2
210.2	210.2	210.2	210.2	210.2	210.3	210.4	210.6	210.8	210.9
211.1	211.2	211.4	211.6	211.8	212.1	212.4	212.6	212.7	212.7
212.9	213.8	214.3	214.4	214.6	214.7	214.8	214.7	214.6	214.5
214.3	214.1	214.0	213.8	213.7	213.6	213.4	213.3	213.2	213.2
213.0	212.9	212.8	212.8	212.7	212.7	212.7	212.7	212.7	212.7

```
                                          MAXIMUM STORAGE =      40.
MAXIMUM STAGE IS     214.8

          **********      **********      **********      **********      **********

                                   HYDROGRAPH ROUTING

                         REACH 2    210 TO 130 LOCAL ROAD
                           ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
                             8CK       1       0       0       0       0       1       0       0
                                                ROUTING DATA
                   QLOSS   CLOSS     AVG    IRES   ISAME    IOPT    IPMP            LSTR
                      0.      0.      0.   10000   10000       0       0               0

                           NSTPS   NSTDL     LAG   AMSKK       X     TSK   STORA  ISPRAT
                               1       0       0      0.      0.      0.      0.       0


NORMAL DEPTH CHANNEL ROUTING
----------------------------

          QN(1)   QN(2)   QN(3)   ELNVT   ELMAX   RLNTH     SEL
         0.0400  0.0400  0.0400   130.0   145.0   4800. 0.01670

          CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC
            90.00  144.00  100.00  134.00  150.00  133.00  150.00  130.00  165.00  130.00
           165.00  133.00  215.00  134.00  225.00  144.00

 STORAGE        0.       1.30       2.61       3.91       5.36      11.47      21.52      31.72      42.06      52.[illegible]
             63.15      73.50      84.79      95.81     106.97     118.27     129.71     141.29     152.99     164.74

 OUTFLOW        0.      45.55     136.10     253.06     393.29     700.11    1452.39    2544.23    3918.43    5545.97
           7407.37    9488.41   11778.12   14267.76   16950.21   19819.58   22870.89   26099.93   29577.90   33447.61

   STAGE    130.00     130.75     131.58     132.37     133.16     133.95     134.74     135.53     136.32     137.11
            137.89     138.68     139.47     140.26     141.05     141.84     142.63     143.42     144.21     145.00



    FLOW        0.      45.55     136.10     253.06     393.29     700.11    1452.39    2544.23    3918.43    5545.97
           7407.37    9488.41   11778.12   14267.76   16950.21   19819.58   22870.89   26099.93   29577.90   33447.61

                                       STATION    80K, PLAN 1, RTIO 1

                                                   OUTFLOW
              0.        0.        0.        0.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        2.        2.        2.
              3.        3.        3.        3.        3.        3.        3.        3.        3.        3.
              3.        3.        2.        2.        2.        2.        2.        2.        2.        2.
              2.        1.        1.        1.        1.        2.        2.        2.        3.        4.
              5.        7.        5.       10.       13.       18.       27.       40.       66.      103.
            145.      197.      256.      310.      323.      324.      328.      331.      335.      338.
            340.      341.      342.      341.      341.      340.      338.      336.      334.      331.
            329.      326.      323.      319.      283.      212.      153.      115.       53.       81.
             70.       63.       57.       54.
```

FLOW									
0.	45.55	136.10	253.06	393.29	700.11	1452.39	2544.23	3918.43	5545.97
7407.37	9488.41	11778.12	14267.76	16950.21	19819.58	22870.89	26099.93	29577.90	33447.61

STATION 80K, PLAN 1, RTIO 1

OUTFLOW

0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	1.	1.	1.	1.	2.	2.	2.	3.	4.
5.	7.	5.	10.	13.	18.	27.	40.	66.	103.
145.	197.	256.	310.	323.	324.	328.	331.	335.	338.
340.	341.	342.	341.	341.	340.	338.	336.	334.	331.
329.	326.	323.	319.	283.	212.	153.	115.	93.	81.
70.	63.	57.	54.	51.	49.	46.	45.	43.	41.
39.	38.	36.	35.	33.	32.	31.	29.	28.	27.
26.	25.	24.	23.	22.	21.	20.	19.	19.	18.
17.	17.	16.	15.	15.	14.	14.	13.	13.	13.
12.	12.	11.	11.	11.	10.	10.	10.	9.	9.
9.	8.	8.	8.	7.	7.	7.	6.	6.	6.
6.	6.	5.	5.	5.	5.	5.	5.	4.	4.
4.	4.	4.	4.	4.	4.	4.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	2.	2.	2.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.
3.	3.	4.	4.	5.	5.	5.	5.	5.	5.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
5.	5.	5.	5.	4.	3.	3.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.1	130.1	130.1	130.1	130.1	130.1	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.1	130.1
130.1	130.1	130.1	130.2	130.2	130.3	130.5	130.7	131.0	131.3
131.6	132.0	132.4	132.7	132.8	132.8	132.8	132.8	132.8	132.8
132.9	132.9	132.9	132.9	132.9	132.9	132.8	132.8	132.8	132.8
132.8	132.8	132.8	132.7	132.5	132.1	131.7	131.4	131.2	131.1

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
132.9	132.9	132.9	132.9	132.9	132.9	132.8	132.8	132.8	132.8
132.8	132.8	132.8	132.7	132.5	132.1	131.7	131.4	131.2	131.1

131.0	130.9	130.9	130.9	130.8	130.8	130.8	130.8	130.7	130.7
130.7	130.7	130.6	130.6	130.6	130.6	130.5	130.5	130.5	130.5
130.4	130.4	130.4	130.4	130.4	130.4	130.4	130.3	130.3	130.3
130.3	130.3	130.3	130.3	130.3	130.2	130.2	130.2	130.2	130.2
130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	342.	338.	136.	72.	10421.
CMS	10.	10.	6.	2.	295.
INCHES		1.44	3.33	3.66	3.69
MM		36.47	84.62	92.90	93.70
AC-FT		168.	339.	427.	431.
THOUS CU M		207.	430.	527.	531.

MAXIMUM STORAGE = 5.

MAXIMUM STAGE IS 132.9

STATION 80K, PLAN 1, RTIO 2

OUTFLOW

0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	1.	1.	2.	2.	2.	3.	3.	4.
6.	7.	5.	11.	14.	20.	29.	42.	72.	109.
153.	207.	267.	313.	324.	325.	330.	333.	337.	340.
354.	384.	394.	369.	345.	341.	341.	338.	336.	334.
331.	329.	326	323.	313.	271.	204.	147.	112.	92.
80.	70.	63.	57.	54.	51.	49.	47.	45.	43.
41.	40.	38.	36.	35.	33.	32.	31.	30.	28.
27.	26.	25.	24.	23.	22.	21.	20.	20.	19.
18.	17.	17.	16.	16.	15.	14.	14.	14.	13.
13.	12.	12.	12.	11.	11.	10.	10.	10.	9.
9.	9.	8.	8.	8.	7.	7.	7.	7.	6.
6.	6.	6.	5.	5.	5.	5.	5.	5.	4.
4.	4.	4.	4.	4.	4.	4.	4.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	2.	2.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.
3.	3.	4.	5.	5.	5.	5.	5.	5.	5.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.	5.	5.	[illegible]	[illegible]
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.1	130.1
130.1	130.1	130.2	130.2	130.2	130.3	130.5	130.7	131.0	131.5
131.7	132.1	132.4	132.7	132.8	132.8	132.8	132.8	132.8	132.9
132.5	133.1	133.2	133.0	132.9	132.5	132.9	132.8	132.8	132.8
132.8	132.8	132.8	132.8	132.7	132.5	132.0	131.7	131.4	131.2
131.1	131.0	130.9	130.9	130.9	130.8	130.8	130.8	130.8	130.7
130.7	130.7	130.7	130.6	130.6	130.6	130.6	130.5	130.5	130.5
130.5	130.5	130.4	130.4	130.4	130.4	130.4	130.4	130.3	130.3
130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.2	130.2	130.2
130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2
130.2	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.0	130.0	130.0	130.0	130.0	130.0

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	394.	351.	206.	75.	10943.
CMS	11.	10.	6.	2.	310.
INCHES		1.49	3.50	3.84	3.87
MM		37.89	88.87	97.55	98.39
AC-FT		174.	408.	448.	452.
THOUS CU M		215.	504.	553.	558.

MAXIMUM STORAGE = 5.

MAXIMUM STAGE IS 133.2

STATION 80K, PLAN 1, RTIO 3

OUTFLOW

0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	3.	3.	4.
6.	8.	10.	12.	15.	21.	31.	45.	78.	115.
161.	217.	276.	316.	324.	327.	331.	336.	340.	377.
438.	472.	446.	397.	350.	343.	341.	339.	337.	335.
332.	329.	327.	324.	320.	289.	224.	166.	122.	58.

STATION 80K, PLAN 1, RTIO 7

OUTFLOW

0.	1.	1.	1.	2.	2.	2.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	4.	4.	5.	6.
7.	8.	9.	9.	9.	9.	8.	8.	7.	7.
7.	6.	6.	5.	5.	5.	4.	4.	4.	4.
3.	3.	3.	3.	3.	4.	5.	7.	10.	13.
19.	25.	31.	36.	44.	64.	95.	139.	199.	263.
315.	327.	333.	518.	1102.	1587.	1573.	1557.	1479.	1352.
1216.	1075.	935.	807.	697.	622.	547.	478.	417.	366.
343.	341.	340.	338.	336.	333.	331.	329.	327.	324.
321.	314.	275.	223.	178.	148.	128.	116.	108.	100.
94.	89.	85.	81.	77.	74.	71.	68.	65.	62.
60.	57.	55.	54.	52.	50.	49.	47.	45.	44.
43.	41.	39.	38.	36.	35.	34.	32.	31.	30.
29.	28.	26.	25.	24.	23.	23.	22.	21.	20.
19.	18.	18.	17.	16.	16.	15.	15.	14.	14.
13.	13.	12.	12.	12.	11.	11.	10.	10.	10.
9.	9.	9.	8.	8.	8.	7.	7.	7.	7.
6.	6.	6.	6.	5.	5.	5.	5.	5.	5.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	2.	2.	3.	3.	4.
5.	5.	5.	8.	17.	23.	23.	22.	22.	20.
18.	16.	15.	13.	11.	10.	8.	7.	6.	5.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
5.	5.	4.	4.	3.	3.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.0
130.0	130.0	130.0	130.0	130.0	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.2	130.2	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.2	130.2
130.3	130.4	130.5	130.6	130.8	130.9	131.2	131.6	132.0	132.4
132.7	132.8	132.8	133.5	134.4	134.8	134.8	134.8	134.8	134.6
134.5	134.3	134.2	134.1	133.9	133.7	133.6	133.4	133.2	133.0
132.9	132.9	132.9	132.8	132.8	132.8	132.8	132.8	132.8	132.8
132.8	132.7	132.5	132.2	131.5	131.7	131.5	131.4	131.3	131.3
131.2	131.2	131.1	131.1	131.1	131.0	131.0	131.0	131.0	130.9

26

131.2	131.2	131.1	131.1	131.1	131.0	131.0	131.0	131.0	130.9

130.9	130.9	130.9	130.9	130.8	130.8	130.8	130.8	130.8	130.8
130.7	130.7	130.7	130.7	130.6	130.6	130.6	130.6	130.5	130.5
130.5	130.5	130.5	130.4	130.4	130.4	130.4	130.4	130.4	130.3
130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.3	130.2	130.2
130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2
130.2	130.2	130.2	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1587.	1162.	492.	180.	26054.
CMS	45.	33.	14.	5.	738.
INCHES		4.94	8.35	9.15	9.23
MM		125.42	212.14	232.43	234.34
AC-FT		576.	975.	1068.	1077.
THOUS CU M		711.	1203.	1318.	1328.

MAXIMUM STORAGE = 23.

MAXIMUM STAGE IS 134.8

STATION 80K, PLAN 1, RTIO 8

OUTFLOW

1.	1.	2.	2.	3.	4.	5.	5.	6.	6.
7.	7.	7.	7.	8.	7.	7.	7.	7.	7.
7.	7.	7.	6.	6.	6.	6.	6.	5.	5.
5.	5.	5.	5.	6.	7.	8.	10.	13.	15.
18.	20.	20.	20.	19.	18.	17.	16.	15.	14.
13.	12.	11.	10.	9.	8.	8.	7.	6.	6.
5.	5.	5.	5.	6.	8.	11.	17.	26.	36.
46.	62.	74.	88.	109.	144.	200.	266.	317.	330.
420.	1023.	2164.	2530.	2824.	3114.	3153.	3120.	2904.	2638.
2349.	2064.	1792.	1544.	1342.	1170.	1013.	871.	752.	658.
584.	514.	447.	394.	348.	344.	342.	341.	340.	339.
338.	337.	335.	334.	332.	331.	329.	328.	326.	324.
322.	320.	303.	264.	220.	187.	165.	149.	137.	129.
123.	117.	112.	107.	102.	98.	94.	90.	87.	85.
80.	77.	74.	71.	68.	65.	63.	60.	58.	55.
54.	52.	50.	49.	47.	45.	44.	43.	41.	40.
38.	37.	35.	34.	32.	31.	30.	29.	28.	27.
26.	25.	24.	23.	22.	21.	20.	19.	18.	18.
17.	16.	16.	15.	15.	14.	14.	13.	13.	13.
12.	12.	11.	11.	11.	10.	10.	9.	9.	9.

STOR

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	2.	2.	2.	2.	3.	3.	4.	5.	5.
6.	16.	28.	32.	34.	36.	36.	36.	34.	32.
30.	27.	25.	22.	20.	18.	16.	14.	12.	11.
9.	8.	6.	5.	5.	5.	5.	5.	5.	5.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.	[illegible]
5.	[illegible]	4.	[illegible]	4.	3.	3.	3.	3.	3.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	1.	1.

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STAGE

130.0	130.0	130.0	130.0	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.1	130.2	130.2	130.3
130.3	130.3	130.4	130.3	130.3	130.3	130.3	130.3	130.3	130.2
130.2	130.2	130.2	130.2	130.2	130.1	130.1	130.1	130.1	130.1
130.1	130.1	130.1	130.1	130.1	130.1	130.2	130.3	130.4	130.6
130.8	130.9	131.0	131.2	131.3	131.6	132.0	132.4	132.7	132.8
133.2	134.3	135.3	135.5	135.7	135.9	135.9	135.9	135.7	135.6
135.4	135.2	135.0	134.8	134.6	134.4	134.3	134.1	134.0	133.8
133.6	133.5	133.3	133.2	132.9	132.9	132.9	132.9	132.9	132.9
132.8	132.8	132.8	132.8	132.8	132.8	132.8	132.8	132.8	132.8
132.8	132.7	132.7	132.4	132.1	131.9	131.8	131.7	131.6	131.5
131.5	131.4	131.4	131.3	131.3	131.2	131.2	131.2	131.1	131.1
131.1	131.1	131.0	131.0	131.0	131.0	130.9	130.9	130.9	130.9
130.9	130.8	130.8	130.8	130.8	130.8	130.8	130.7	130.7	130.7
130.7	130.6	130.6	130.6	130.6	130.5	130.5	130.5	130.5	130.5
130.4	130.4	130.4	130.4	130.4	130.4	130.3	130.3	130.3	130.3
130.3	130.3	130.3	130.3	130.3	130.2	130.2	130.2	130.2	130.2
130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2

PLAN 1
RATIO 8

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3153.	2495.	981.	359.	52153.
CMS	89.	71.	28.	10.	1477.
INCHES		10.60	16.67	18.31	18.46
MM		269.14	423.35	465.05	468.90
AC-FT		1237.	1946.	2137.	2155.
THOUS CU M		1526.	2400.	2636.	2658.

MAXIMUM STORAGE = 36.

MAXIMUM STAGE IS 135.9

....

MECHANICVILLE RESERVOIR DAM
NY - 1061

NO BREACH

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIO 1 0.20	RATIO 2 0.21	RATIO 3 0.22	RATIO 4 0.23	RATIO 5 0.24	RATIO 6 0.25	RATIO 7 0.50	RATIO 8 1.00
				RATIOS APPLIED TO FLOWS							
HYDROGRAPH AT	BASIN	2.19	1	634.	665.	697.	729.	760.	792.	1584.	3168.
		(2540.71)	(	17.94)(	18.84)(	19.73)(	20.63)(	21.53)(	22.42)(	44.85)(	89.69)(
ROUTED TO	DAM	2.19	1	342.	406.	494.	573.	620.	701.	1587.	3171.
		(2540.71)	(	9.67)(	11.49)(	14.00)(	16.23)(	17.56)(	19.85)(	44.94)(	89.79)(
ROUTED TO	32K	2.19	1	342.	392.	471.	551.	617.	684.	1587.	3182.
		(2540.71)	(	9.67)(	11.10)(	13.34)(	15.61)(	17.47)(	19.38)(	44.93)(	90.10)(
ROUTED TO	80K	2.19	1	342.	394.	472.	529.	603.	643.	1587.	3153.
		(2540.71)	(	9.67)(	11.15)(	13.36)(	14.98)(	17.08)(	18.20)(	44.92)(	89.30)(

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 ....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	263.00	263.00	268.50
STORAGE	201.	201.	322.
OUTFLOW	0.	0.	343.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
0.20	268.27	0.	317.	342.	0.	46.50	0.
0.21	268.66	0.16	325.	406.	2.00	46.00	0.
0.22	268.78	0.28	328.	494.	2.50	45.50	0.
0.23	268.87	0.37	330.	573.	3.00	45.00	0.
0.24	268.92	0.42	331.	620.	3.50	45.00	0.
0.25	269.00	0.50	333.	701.	4.00	44.50	0.
0.50	269.65	1.15	347.	1587.	8.00	43.50	0.
1.00	270.49	1.99	366.	3171.	12.00	43.50	0.

PLAN 1 STATION 32K

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
0.20	342.	212.7	46.50
0.21	352.	212.8	46.00
0.22	471.	212.9	46.00
0.23	551.	213.0	45.50
0.24	617.	213.1	45.00
0.25	684.	213.2	45.00
0.50	1587.	213.9	43.00
1.00	3182.	214.8	43.50

PLAN 1 STATION 80K

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
0.20	342.	132.9	46.50
0.21	394.	133.2	46.50
0.22	472.	133.4	46.00
0.23	529.	133.5	45.50
0.24	603.	133.7	45.50
0.25	643.	133.8	45.50
0.50	1587.	134.8	43.00
1.00	3153.	135.9	43.50

MECHANICVILLE RESERVOIR DAM
NY - 1061

NO BREACH

#4

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**********************************                                          **********************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                                            NEW YORK STATE
DAM SAFETY VERSION      JULY 1978                                           DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION  26 FEB 79                                              FLOOD PROTECTION BUREAU
  MODIFIED FOR HONEYWELL APR 79
**********************************                                          **********************************
    1               A1  NY-1061    MECHANICVILLE RESERVOIR DAM          UPPER HUDSON RIVER BASIN
    2               A2             DEC 225A-142 UH -- PLUM BROOK        SARATOGA COUNTY
    3               A3             CITY           WATER SUPPLY          SNYDER UH
    4               B     200        0       30        0        0        0        0        0        0        0
    5               B1      5
    6               J       1        8        1
    7               J1   0.20     0.21     0.22     0.23     0.24     0.25     0.50        1
    8               K       0    BASIN                                           1
    9               K1             INFLOW HYDROGRAPH -- DAM
   10               M       1        1     2.19              2.19                                  1
   11               P               19      111      123      132      142
   12               T                                                         1.0      0.2
   13               W    3.61    0.625
   14               X      -6     -0.1      1.5
   15               K       1      DAM                                           1
   16               K1             ROUTED OUTFLOW - DAM - SPILLWAY ELEV 263-USGS   FLASHBOARDS OUT
   17               Y                                 1        1
   18               Y1      1                                                 -263       -1
   19               Y4    263    263.1    263.2    263.5    264.0    264.5   264.59    265.0    265.5    266.0
   20               Y4  266.5   266.85    267.0    268.0    268.5
   21               Y5      0      4.9     13.9       59      156      289      316      320      324      327
   22               Y5    330      332      333      340      343
   23               $S      0      201      322
   24               $E    236      263    268.5
   25               $$    263
   26               $D  268.5     2.63      1.5      380
   27               $B     30      0.5      252      0.5      263    258.6
   28               K       1      32K                                           1
   29               K1             REACH 1  DAM TO 210
   30               Y                                 1        1
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          K1          REACH 1  [illegible] TO 210
30        Y                         1        1

31        Y1     1
32        Y6  0.04   0.04   0.04   210   220   3200  0.0081
33        Y7    20    219     50   213   150    212   150   210   165   210
34        Y7   165    212    265   213   295    215
35        K      1    80K                             1
36        K1           REACH 2   210 TO 130 LOCAL ROAD
37        Y                       1      1
38        Y1     1
39        Y6  0.04   0.04   0.04   130   145   4800  0.0167
40        Y7    50    144    100   134   150    133   150   130   165   130
41        Y7   165    133    215   134   225    144
42        K     51
43        A
44        A
45        A
46        A
47        A
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30

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**********************************                                        **********************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                                          NEW YORK STATE
DAM SAFETY VERSION      JULY 1978                                         DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION  26 FEB 79                                            FLOOD PROTECTION BUREAU
  MODIFIED FOR HONEYWELL APR 79
**********************************                                        **********************************

RUN DATE 05/26/81
             NY-1061   MECHANICVILLE RESERVOIR DAM                  UPPER HUDSON RIVER BASIN
                       DEC 225A-142 UH -- PLUM BROOK                SARATOGA COUNTY
                       CITY          WATER SUPPLY                   SNYDER UH

                                        JOB SPECIFICATION
             NQ      NHR     NMIN    IDAY     IHR    IMIN   METRC    IPLT    IPRT   NSTAN
            200        0       30       0       0       0       0       0       0       0
                                    JOPER     NWT   LROPT   TRACE
                                        5       0       0       0

                              MULTI-PLAN ANALYSES TO BE PERFORMED
                                 NPLAN= 1 NRTIO= 8 LRTIO= 1
             RTIOS=   0.20    0.21    0.22    0.23    0.24    0.25    0.50    1.00


          **********     **********     **********     **********     **********

                                  SUB-AREA RUNOFF COMPUTATION

                         INFLOW HYDROGRAPH -- DAM
                           ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
                           BASIN       0       0       0       0       0       1       0       0

                                            HYDROGRAPH DATA
            IHYDG   IUHG   TAREA    SNAP   TRSDA   TRSPC   RATIO   ISNOW   ISAME   LOCAL
                1      1    2.19      0.    2.19      0.      0.       0       1       0

                                              PRECIP DATA
                      SPFE     PMS      R6     R12     R24     R48     R72     R96
                        0.   19.10  111.00  123.00  132.00  142.00      0.      0.
TRSPC COMPUTED BY THE PROGRAM IS 0.800

                                               LOSS DATA
         LROPT   STRKR   DLTKR   RTIOL   ERAIN   STRKS   RTIOK   STRTL   CNSTL   ALSMX   RTIMP
             0      0.      0.    1.00      0.      0.    1.00    1.00    0.20      0.      0.

                                          UNIT HYDROGRAPH DATA
                                  TP=  3.61    CP=0.63     NTA=  0

                                             RECESSION DATA
                               STRTQ=   -6.00    QRCSN=   -0.10    RTIOR= 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 8.20 AND R= 5.33 INTERVALS

           UNIT HYDROGRAPH 39 END-OF-PERIOD ORDINATES, LAG=   3.58 HOURS, CP= 0.63  VOL= 1.00
             12.      45.      85.     139.     188.     226.     247.     250.     231.     199.
            171.     145.     126.     108.      92.      79.      68.      58.      50.      43.
             37.      32.      27.      23.      20.      17.      15.      13.      11.       9.
              8.       7.       6.       5.       4.       4.       3.       3.       2.

       0                                    END-OF-PERIOD FLOW
   MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS    COMP Q      MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS    COMP Q
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********** ********** ********** ********** **********

HYDROGRAPH ROUTING

ROUTED OUTFLOW - DAM - SPILLWAY ELEV 263-USGS   FLASHBOARDS OUT [redacted]

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
DAM	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.	0.	0.	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.	0.	0.	-263.	-1

STAGE	263.00	263.10	263.20	263.50	264.00	264.50	264.59	265.00	265.50	266.00
	266.50	266.55	267.00	268.00	268.50					
FLOW	0.	4.90	13.90	55.00	155.00	289.00	316.00	320.00	324.00	327.00
	330.00	332.00	333.00	340.00	343.00					

CAPACITY=	0.	201.	322.
ELEVATION=	235.	263.	269.

CREL	SPWID	COQW	EXPW	ELEVL	COQL	CAREA	EXPL
263.0	0.	0.	0.	0.	0.	0.	0.

DAM DATA

TOPEL	COQD	EXPD	DAMWID
268.5	2.6	1.5	380.

DAM BREACH DATA

BRWID	Z	ELBM	TFAIL	WSEL	FAILEL
30.	0.50	252.00	0.50	263.00	268.60

STATION DAM, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	2.	2.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
1.	1.	1.	1.	2.	2.	3.	3.	4.	6.
8.	9.	11.	14.	19.	27.	40.	58.	90.	128.
192.	252.	317.	320.	324.	327.	331.	334.	337.	340.
341.	342.	342.	341.	340.	339.	337.	334.	332.	329.
327.	324.	321.	316.	212.	152.	121.	100.	84.	73.
65.	59.	54.	52.	49.	47.	45.	43.	41.	39.
37.	35.	34.	33.	32.	30.	29.	28.	27.	26.
25.	24.	23.	22.	21.	20.	19.	13.	18.	17.
16.	15.	15.	15.	14.	14.	13.	13.	12.	12.
12.	11.	11.	10.	10.	10.	9.	9.	9.	8.
6.	8.	7.	7.	7.	7.	6.	6.	6.	6.

STORAGE

201.	201.	201.	201.	201.	201.	201.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

202.	202.	202.	202.	202.	202.	202.	202.	202.	201.
201.	201.	201.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	203.	203.	203.
204.	204.	205.	205.	206.	208.	210.	212.	216.	220.
[illegible]	231.	237.	246.	256.	268.	281.	293.	302.	310.
319.	317.	317.	315.	311.	316.	300.	293.	285.	276.
267.	257.	246.	236.	228.	223.	219.	217.	215.	214.
213.	212.	212.	211.	211.	211.	210.	210.	210.	209.
209.	209.	209.	208.	208.	208.	208.	208.	207.	207.
207.	207.	207.	207.	207.	206.	206.	206.	206.	206.
206.	206.	206.	206.	205.	205.	205.	205.	205.	205.
205.	205.	205.	205.	204.	204.	204.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	203.	203.	203.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.
203.	203.	203.	203.	203.	203.	203.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.2	263.2	263.2	263.2	263.3	263.4	263.5	263.7	263.9
263.1	264.4	264.7	265.0	265.5	266.1	266.6	267.2	267.6	267.5
263.2	268.4	268.3	268.2	268.0	267.8	267.5	267.2	266.8	266.4
[illegible]	[illegible]	265.1	264.6	264.2	264.0	263.8	263.7	263.6	263.6
263.6	263.5	263.5	263.5	263.5	263.4	263.4	263.4	263.4	263.4
263.4	263.4	263.3	263.3	263.3	263.3	263.3	263.3	263.3	263.3
263.3	263.3	263.3	263.3	263.3	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.0	263.0	263.0	263.0

PEAK OUTFLOW IS 342. AT TIME 46.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	342.	338.	196.	72.	10425.
CMS	10.	10.	6.	2.	295.
INCHES		1.44	3.33	3.66	3.69
MM		36.48	84.66	92.90	93.73
AC-FT		168.	389.	427.	431.
THOUS CU M		207.	480.	527.	531.

STATION DAM, PLAN 1, RATIO 2

Plan 1
Ratio 2

OUTFLOW

0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	2.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	2.	2.	2.	3.	4.	5.	6.
8.	10.	12.	15.	20.	29.	42.	62.	95.	135.
193.	265.	317.	321.	325.	329.	332.	337.	340.	342.
377.	343.	365.	323.	280.	242.	210.	181.	157.	136.
118.	102.	88.	77.	70.	66.	62.	59.	57.	55.
52.	50.	48.	47.	45.	43.	41.	40.	38.	37.
35.	34.	33.	31.	30.	25.	28.	27.	26.	25.
24.	23.	22.	21.	20.	20.	19.	18.	17.	17.
16.	15.	15.	14.	14.	13.	13.	12.	12.	11.
11.	10.	10.	10.	9.	9.	9.	8.	8.	8.
7.	7.	7.	7.	6.	6.	6.	6.	5.	5.
5.	5.	5.	4.	4.	4.	4.	4.	4.	4.
3.	3.	3.	3.	3.	3.	3.	3.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

STORAGE

201.	201.	201.	201.	201.	201.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	201.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
252.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	202.	202.	203.	203.	204.
204.	204.	205.	206.	206.	208.	210.	213.	216.	221.
226.	232.	235.	248.	260.	273.	287.	300.	311.	319.
324.	236.	137.	136.	134.	133.	132.	131.	130.	129.
128.	127.	126.	126.	125.	125.	125.	125.	124.	124.
124.	124.	124.	124.	124.	124.	123.	123.	123.	123.
123.	123.	123.	123.	123.	123.	122.	122.	122.	122.
122.	122.	122.	122.	122.	122.	122.	122.	122.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
120.	120.	120.	120.	120.	120.	120.	120.	120.	120.
120.	120.	120.	120.	120.	120.	120.	120.	120.	120.
120.	120.	120.	120.	120.	120.	120.	120.	120.	120.
120.	120.	120.	120.	120.	120.	120.	120.	120.	120.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.2	263.2	263.2	263.2	263.3	263.4	263.5	263.7	263.9
264.1	264.4	264.7	265.2	265.7	266.3	266.9	267.5	268.0	268.4
254.6	254.6	254.5	254.3	254.1	253.9	253.7	253.5	253.4	253.3
253.2	253.1	253.0	252.9	252.8	252.8	252.8	252.7	252.7	252.7
252.7	252.7	252.6	252.6	252.6	252.6	252.6	252.6	252.6	252.5
252.5	252.5	252.5	252.5	252.5	252.5	252.4	252.4	252.4	252.4

PLAN 1
RATIO 2

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.2	263.2	263.2	263.2	263.3	263.4	263.5	263.7	263.9
264.1	264.4	264.7	265.2	265.7	266.3	266.9	267.5	268.0	268.4
268.6	264.6	254.5	254.3	254.1	253.9	253.7	253.5	253.4	253.3
253.2	253.1	253.0	252.9	252.8	252.8	252.8	252.7	252.7	252.7
252.7	252.7	252.6	252.6	252.6	252.6	252.6	252.6	252.6	252.5
252.5	252.5	252.5	252.5	252.5	252.5	252.4	252.4	252.4	252.4
252.4	252.4	252.4	252.4	252.4	252.4	252.3	252.3	252.3	252.3
252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.2
252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2
252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.1
252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1
252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1
252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1

PEAK OUTFLOW IS 5143. AT TIME 46.00 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	5143.	737.	254.	91.	13154.
CMS	146.	21.	7.	3.	372.
INCHES		3.13	4.31	4.63	4.66
MM		79.47	109.55	117.48	118.27
AC-FT		365.	503.	540.	544.
THOUS CU M		451.	621.	666.	670.

PLAN 1
RATIO 2

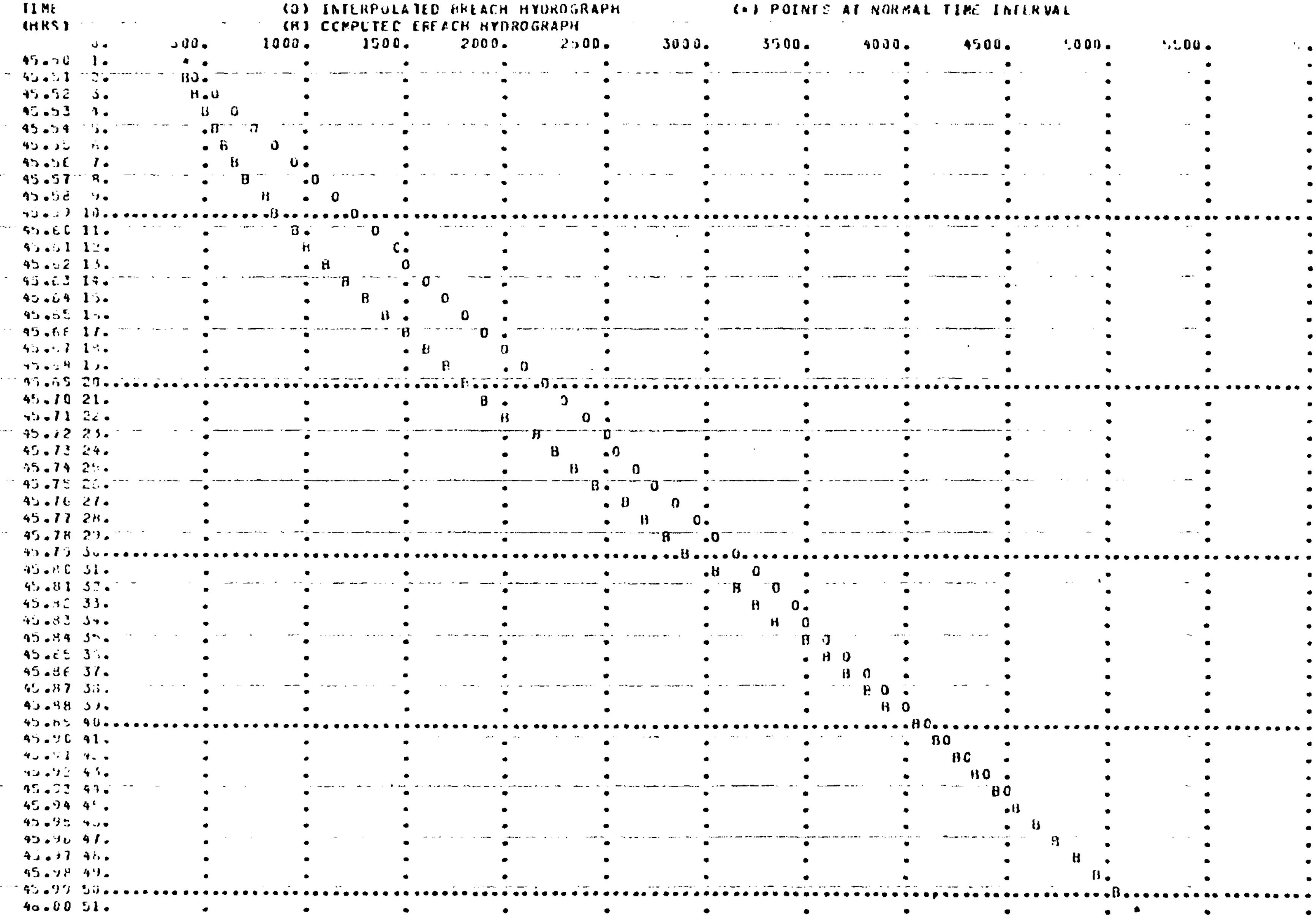
THE DAM BREACH HYDROGRAPH WAS DEVELOPED USING A TIME INTERVAL OF 0.010 HOURS DURING BREACH FORMATION.
DOWNSTREAM CALCULATIONS WILL USE A TIME INTERVAL OF 0.500 HOURS.
THIS TABLE COMPARES THE HYDROGRAPH FOR DOWNSTREAM CALCULATIONS WITH THE COMPUTED BREACH HYDROGRAPH.
INTERMEDIATE FLOWS ARE INTERPOLATED FROM END-OF-PERIOD VALUES.

TIME (HOURS)	TIME FROM BEGINNING OF BREACH (HOURS)	INTERPOLATED BREACH HYDROGRAPH (CFS)	-	COMPUTED BREACH HYDROGRAPH (CFS)	=	ERROR (CFS)	ACCUMULATED ERROR (CFS)	ACCUMULATED ERROR (AC-FT)
45.500	0.	379.		379.		0.	0.	0.
45.510	0.010	474.		407.		67.	67.	0.
45.520	0.020	569.		443.		126.	193.	0.
45.530	0.030	665.		488.		177.	370.	0.
45.540	0.040	760.		539.		221.	591.	0.
45.550	0.050	855.		596.		260.	851.	1.
45.560	0.060	951.		657.		294.	1144.	1.
45.570	0.070	1046.		722.		324.	1468.	1.
45.580	0.080	1141.		792.		350.	1818.	2.
45.590	0.090	1236.		865.		372.	2189.	2.
45.600	0.100	1332.		941.		390.	2580.	2.
45.610	0.110	1427.		1022.		405.	2985.	2.
45.620	0.120	1522.		1109.		414.	3398.	3.
45.630	0.130	1618.		1201.		416.	3815.	3.
45.640	0.140	1713.		1297.		416.	4231.	3.
45.650	0.150	1808.		1395.		414.	4645.	4.
45.660	0.160	1903.		1495.		409.	5053.	4.
45.670	0.170	1999.		1597.		402.	5455.	5.
45.680	0.180	2094.		1701.		393.	5848.	5.
45.690	0.190	2189.		1807.		382.	6230.	5.
45.700	0.200	2285.		1914.		370.	6601.	5.
45.710	0.210	2380.		2023.		357.	6958.	6.
45.720	0.220	2475.		2133.		343.	7300.	6.
45.730	0.230	2570.		2243.		327.	7628.	6.
45.740	0.240	2666.		2355.		311.	7939.	7.
45.750	0.250	2761.		2467.		294.	8233.	7.
45.760	0.260	2856.		2579.		277.	8511.	7.
45.770	0.270	2952.		2692.		260.	8770.	7.
45.780	0.280	3047.		2805.		242.	9012.	7.
45.790	0.290	3142.		2918.		224.	9236.	8.
45.800	0.300	3237.		3031.		206.	9443.	8.
45.810	0.310	3333.		3144.		189.	9631.	8.
45.820	0.320	3428.		3257.		171.	9803.	8.
45.830	0.320	3523.		3369.		154.	9957.	8.
45.840	0.340	3619.		3481.		138.	10095.	8.
45.850	0.350	3714.		3592.		122.	10216.	8.
45.860	0.360	3809.		3703.		106.	10322.	9.
45.870	0.370	3904.		3813.		91.	10414.	9.
45.880	0.380	4000.		3922.		78.	10491.	9.
45.890	0.390	4095.		4030.		65.	10556.	9.
45.900	0.400	4190.		4138.		53.	10609.	9.
45.910	0.410	4286.		4244.		42.	10650.	9.
45.920	0.420	4381.		4349.		32.	10682.	9.
45.930	0.430	4476.		4453.		23.	10705.	9.
45.940	0.440	4571.		4556.		15.	10720.	9.
45.950	0.450	4667.		4658.		9.	10729.	9.
45.960	0.460	4762.		4758.		4.	10734.	9.
45.970	0.470	4857.		4856.		1.	10735.	9.
45.980	0.480	4953.		4953.		-1.	10734.	9.

40VF*

STATION DAM

(O) INTERPOLATED BREACH HYDROGRAPH
(B) COMPUTED BREACH HYDROGRAPH
(*) POINTS AT NORMAL TIME INTERVAL



AD-A105 961 NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/13
NATIONAL DAM SAFETY PROGRAM. MECHANICVILLE RESERVOIR DAM (INVEN--ETC(U)
JUN 81 G KOCH DACW51-79-C-0001

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2 OF 2

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STATION DAM, PLAN 1, RATIO [illegible]

BEGIN DAM FAILURE AT 42.00 HOURS

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

1.	1.	1.	2.	2.	2.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	4.	5.	6.	7.	8.
9.	9.	9.	9.	8.	8.	8.	7.	7.	6.
6.	5.	5.	5.	4.	4.	4.	4.	4.	3.
3.	3.	3.	3.	4.	5.	8.	11.	15.	21.
26.	31.	37.	44.	55.	81.	120.	178.	265.	319.
324.	331.	340.	1004.	5986.	1741.	1573.	1538.	1429.	1290.
1145.	1001.	866.	747.	645.	556.	480.	414.	358.	309.
267.	231.	195.	175.	160.	151.	144.	138.	133.	128.
123.	118.	112.	109.	105.	100.	97.	93.	89.	86.
82.	79.	76.	73.	70.	68.	65.	62.	60.	58.
55.	53.	51.	49.	47.	45.	44.	42.	40.	39.
37.	36.	34.	33.	32.	31.	29.	28.	27.	26.
25.	24.	22.	22.	21.	21.	20.	19.	18.	18.
17.	16.	16.	15.	14.	14.	13.	13.	12.	12.
11.	11.	11.	10.	10.	9.	9.	9.	8.	8.
8.	7.	7.	7.	7.	6.	6.	6.	6.	5.
5.	5.	5.	5.	5.	4.	4.	4.	4.	4.

STORAGE

201.	201.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	203.	203.	203.	203.	203.	203.	203.	203.
202.	202.	202.	202.	202.	202.	202.	202.	202.	202.
202.	202.	202.	202.	202.	203.	203.	203.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
203.	203.	203.	203.	203.	203.	203.	203.	203.	203.
202.	202.	202.	203.	203.	203.	204.	205.	206.	206.
207.	208.	209.	210.	212.	215.	219.	225.	232.	242.
257.	281.	312.	338.	265.	169.	156.	165.	163.	160.
157.	154.	151.	148.	145.	143.	141.	139.	137.	135.
134.	133.	131.	130.	130.	129.	129.	129.	128.	128.
128.	128.	128.	127.	127.	127.	127.	127.	126.	126.
126.	126.	126.	125.	125.	125.	125.	125.	125.	125.
124.	124.	124.	124.	124.	124.	124.	123.	123.	123.
123.	123.	123.	123.	123.	123.	123.	122.	122.	122.
122.	122.	122.	122.	122.	122.	122.	122.	122.	122.
122.	121.	121.	121.	121.	121.	121.	121.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
121.	120.	120.	120.	120.	120.	120.	120.	120.	120.
120.	120.	120.	120.	120.	120.	120.	120.	120.	120.

STAGE

263.0	263.0	263.0	263.0	263.0	263.0	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.2
263.3	263.3	263.4	263.4	263.5	263.6	263.8	264.1	264.4	264.5

PLAN 1
RATIO 7

265.6	266.6	268.1	269.2	265.9	258.7	258.3	258.2	257.9	257.5
257.1	256.7	256.3	255.9	255.5	255.2	254.9	254.7	254.4	254.2
254.0	253.8	253.6	253.5	253.4	253.4	253.3	253.3	253.3	253.2
253.2	253.2	253.1	253.1	253.1	253.0	253.0	253.0	253.0	252.9
252.9	252.9	252.9	252.8	252.8	252.8	252.8	252.8	252.7	252.7
252.7	252.7	252.7	252.7	252.6	252.6	252.6	252.6	252.6	252.6
252.5	252.5	252.5	252.5	252.5	252.5	252.5	252.5	252.4	252.4
252.4	252.4	252.4	252.4	252.4	252.4	252.4	252.3	252.3	252.3
252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3
252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2
252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2
252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1	252.1

PEAK OUTFLOW IS 5986. AT TIME 42.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	5986.	1568.	542.	195.	28353.
CMS	170.	44.	15.	6.	803.
INCHES		6.66	9.22	9.96	10.04
MM		169.15	234.06	253.07	254.92
AC-FT		777.	1076.	1163.	1172.
THOUS CU M		959.	1327.	1435.	1445.

THE DAM BREACH HYDROGRAPH WAS DEVELOPED USING A TIME INTERVAL OF 0.010 HOURS DURING BREACH FORMATION.
DOWNSTREAM CALCULATIONS WILL USE A TIME INTERVAL OF 0.500 HOURS.
THIS TABLE COMPARES THE HYDROGRAPH FOR DOWNSTREAM CALCULATIONS WITH THE COMPUTED BREACH HYDROGRAPH.
INTERMEDIATE FLOWS ARE INTERPOLATED FROM END-OF-PERIOD VALUES.

PLAN 1
RATIO 7

TIME (HOURS)	TIME FROM BEGINNING OF BREACH (HOURS)	INTERPOLATED BREACH HYDROGRAPH (CFS) -	COMPUTED BREACH HYDROGRAPH (CFS) =	ERROR (CFS)	ACCUMULATED ERROR (CFS)	ACCUMULATED ERROR (AC-FT)
42.000	0.	1004.	1004.	0.	0.	0.
42.010	0.010	1104.	1078.	26.	26.	0.
42.020	0.020	1204.	1145.	59.	84.	0.
42.030	0.030	1303.	1216.	87.	172.	0.
42.040	0.040	1403.	1290.	113.	285.	0.
42.050	0.050	1503.	1365.	137.	422.	0.
42.060	0.060	1602.	1442.	160.	582.	0.
42.070	0.070	1702.	1520.	181.	764.	1.
42.080	0.080	1802.	1599.	202.	966.	1.
42.090	0.090	1901.	1678.	223.	1189.	1.
42.100	0.100	2001.	1757.	244.	1433.	1.
42.110	0.110	2100.	1836.	264.	1697.	1.
42.120	0.120	2200.	1915.	285.	1982.	2.
42.130	0.130	2300.	1994.	306.	2288.	2.
42.140	0.140	2399.	2073.	327.	2614.	2.
42.150	0.150	2499.	2151.	348.	2962.	2.
42.160	0.160	2599.	2230.	369.	3331.	3.
42.170	0.170	2698.	2308.	390.	3721.	3.
42.180	0.180	2798.	2387.	411.	4132.	3.
42.190	0.190	2897.	2466.	431.	4564.	4.
42.200	0.200	2997.	2546.	451.	5015.	4.
42.210	0.210	3097.	2626.	470.	5485.	5.
42.220	0.220	3196.	2708.	488.	5974.	5.
42.230	0.230	3296.	2792.	504.	6478.	5.
42.240	0.240	3396.	2878.	518.	6995.	6.
42.250	0.250	3495.	2967.	528.	7523.	6.
42.260	0.260	3595.	3060.	534.	8058.	7.
42.270	0.270	3694.	3160.	534.	8592.	7.
42.280	0.280	3794.	3269.	525.	9117.	8.
42.290	0.290	3894.	3399.	495.	9612.	8.
42.300	0.300	3993.	3531.	462.	10074.	8.
42.310	0.310	4093.	3663.	429.	10503.	9.
42.320	0.320	4193.	3795.	397.	10900.	9.
42.330	0.330	4292.	3927.	365.	11266.	9.
42.340	0.340	4392.	4057.	335.	11601.	10.
42.350	0.350	4491.	4187.	304.	11905.	10.
42.360	0.360	4591.	4316.	275.	12180.	10.
42.370	0.370	4691.	4444.	247.	12427.	10.
42.380	0.380	4790.	4571.	220.	12647.	10.
42.390	0.390	4890.	4696.	194.	12840.	11.
42.400	0.400	4990.	4821.	167.	13009.	11.
42.410	0.410	5089.	4944.	145.	13154.	11.
42.420	0.420	5189.	5066.	123.	13277.	11.
42.430	0.430	5288.	5186.	102.	13379.	11.
42.440	0.440	5388.	5305.	83.	13462.	11.
42.450	0.450	5488.	5423.	65.	13526.	11.
42.460	0.460	5587.	5539.	48.	13575.	11.
42.470	0.470	5687.	5653.	34.	13609.	11.
42.480	0.480	5787.	5766.	21.	13629.	11.
42.490	0.490	5886.	5877.	10.	13639.	11.
42.500	0.500	5986.	[illegible]	[illegible]	[illegible]	[illegible]

40VF.

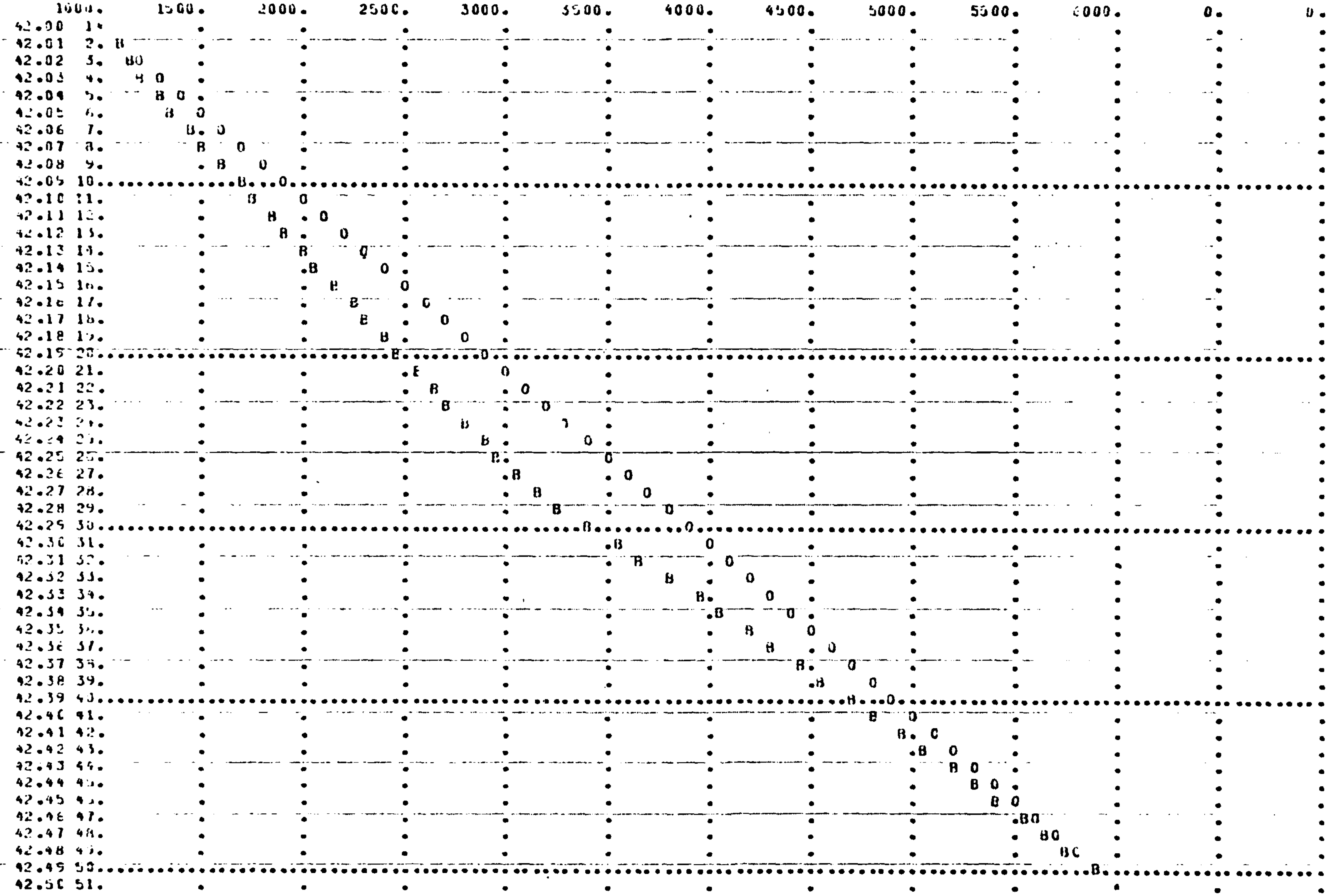
STATION DAM

TIME (HRS)

(O) INTERPOLATED BREACH HYDROGRAPH

(B) COMPUTED BREACH HYDROGRAPH

(*) POINTS AT NORMAL TIME INTERVAL



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•OVN•

STATION C.M. PLAN 1, RATIO 8

BEGIN DAM FAILURE AT 40.50 HOURS

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

1.	2.	3.	4.	4.	5.	6.	6.	7.	7.
7.	7.	8.	8.	7.	7.	7.	7.	7.	7.
7.	7.	6.	6.	6.	6.	6.	5.	5.	5.
5.	5.	5.	6.	7.	9.	11.	14.	17.	19.
20.	20.	20.	19.	18.	17.	15.	14.	13.	12.
11.	10.	10.	9.	8.	7.	7.	6.	6.	5.
5.	5.	5.	6.	8.	12.	19.	27.	37.	47.
57.	70.	83.	99.	127.	179.	269.	320.	326.	334.
631.	2214.	2526.	2588.	2945.	3127.	3171.	3063.	2832.	2548.
2254.	1966.	1698.	1463.	1260.	1086.	936.	807.	696.	600.
518.	447.	386.	346.	313.	298.	285.	274.	263.	253.
245.	233.	224.	215.	207.	199.	191.	184.	176.	169.
163.	156.	150.	144.	139.	133.	128.	123.	118.	114.
109.	105.	101.	97.	93.	90.	86.	83.	79.	76.
73.	71.	68.	65.	63.	60.	58.	56.	53.	51.
49.	47.	46.	44.	42.	40.	39.	37.	36.	35.
33.	32.	31.	29.	28.	27.	26.	25.	24.	23.
22.	22.	21.	20.	19.	18.	18.	17.	16.	16.
15.	15.	14.	13.	13.	12.	12.	11.	11.	11.
10.	10.	9.	9.	9.	8.	8.	8.	7.	7.

STORAGE

201.	202.	202.	203.	203.	203.	203.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
204.	204.	204.	203.	203.	203.	203.	203.	203.	203.
203.	203.	203.	203.	204.	204.	205.	205.	206.	206.
206.	206.	206.	206.	206.	206.	206.	205.	205.	205.
205.	205.	204.	204.	204.	204.	204.	203.	203.	203.
203.	203.	203.	204.	204.	205.	206.	208.	209.	211.
212.	214.	215.	217.	220.	225.	232.	244.	263.	253.
331.	272.	182.	183.	188.	191.	192.	190.	187.	182.
178.	173.	168.	164.	160.	156.	153.	150.	147.	144.
142.	140.	138.	136.	136.	135.	135.	134.	134.	133.
133.	133.	132.	132.	132.	131.	131.	131.	130.	130.
130.	130.	129.	129.	129.	129.	128.	128.	128.	128.
127.	127.	127.	127.	127.	126.	126.	126.	126.	126.
125.	125.	125.	125.	125.	125.	125.	124.	124.	124.
124.	124.	124.	124.	123.	123.	123.	123.	123.	123.
123.	123.	123.	123.	122.	122.	122.	122.	122.	122.
122.	122.	122.	122.	122.	122.	122.	122.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	120.

STAGE

263.0	263.0	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.3	263.4	263.4
263.5	263.6	263.6	263.7	263.9	264.1	264.4	265.0	265.8	267.2

PLAN 1
RATIO 8

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
125.	125.	125.	125.	125.	125.	125.	124.	124.	124.
124.	124.	124.	124.	123.	123.	123.	123.	123.	123.
123.	123.	122.	123.	122.	122.	122.	122.	122.	122.
122.	122.	122.	122.	122.	122.	122.	122.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
121.	121.	121.	121.	121.	121.	121.	121.	121.	120.

STAGE

263.0	263.0	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2	263.2
263.2	263.2	263.2	263.1	263.1	263.1	263.1	263.1	263.1	263.1
263.1	263.1	263.1	263.1	263.1	263.2	263.2	263.3	263.4	263.4
263.5	263.6	263.6	263.7	263.9	264.1	264.4	265.0	265.8	267.2

268.9	266.2	260.5	260.6	261.3	261.7	261.7	261.5	261.1	260.5
259.9	259.2	258.6	258.0	257.5	257.0	256.5	256.1	255.7	255.4
255.1	254.8	254.5	254.3	254.2	254.1	254.1	254.0	254.0	253.9
253.9	253.8	253.8	253.7	253.7	253.6	253.6	253.6	253.5	253.5
253.4	253.4	253.4	253.3	253.3	253.3	253.2	253.2	253.2	253.1
253.1	253.1	253.1	253.0	253.0	253.0	252.9	252.9	252.9	252.9
252.9	252.8	252.8	252.8	252.8	252.7	252.7	252.7	252.7	252.7
252.7	252.6	252.6	252.6	252.6	252.6	252.6	252.5	252.5	252.5
252.5	252.5	252.5	252.5	252.5	252.4	252.4	252.4	252.4	252.4
252.4	252.4	252.4	252.4	252.3	252.3	252.3	252.3	252.3	252.3
252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.2	252.2	252.2
252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2	252.2

PEAK OUTFLOW IS 6214. AT TIME 41.00 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	6214.	2865.	1035.	375.	54384.
CMS	176.	81.	29.	11.	1540.
INCHES		12.18	17.60	19.10	19.25
MM		309.26	446.98	485.20	488.96
AC-FT		1421.	2054.	2230.	2247.
THOUS CU M		1753.	2534.	2751.	2772.

PLAN 1
RATIO 8

THE DAM BREACH HYDROGRAPH WAS DEVELOPED USING A TIME INTERVAL OF 0.010 HOURS DURING BREACH FORMATION.
DOWNSTREAM CALCULATIONS WILL USE A TIME INTERVAL OF 0.500 HOURS.
THIS TABLE COMPARES THE HYDROGRAPH FOR DOWNSTREAM CALCULATIONS WITH THE COMPUTED BREACH HYDROGRAPH.
INTERMEDIATE FLOWS ARE INTERPOLATED FROM END-OF-PERIOD VALUES.

TIME (HOURS)	TIME FROM BEGINNING OF BREACH (HOURS)	INTERPOLATED BREACH HYDROGRAPH (CFS)	- COMPUTED BREACH HYDROGRAPH (CFS)	= ERROR (CFS)	ACCUMULATED ERROR (CFS)	ACCUMULATED ERROR (AC-FT)
40.500	0.	631.	631.	0.	0.	0.
40.510	0.010	743.	713.	29.	29.	0.
40.520	0.020	854.	796.	58.	88.	0.
40.530	0.030	966.	886.	81.	168.	0.
40.540	0.040	1078.	980.	98.	266.	0.
40.550	0.050	1189.	1077.	112.	378.	0.
40.560	0.060	1301.	1177.	124.	502.	0.
40.570	0.070	1413.	1279.	134.	636.	1.
40.580	0.080	1524.	1382.	143.	778.	1.
40.590	0.090	1636.	1485.	151.	929.	1.
40.600	0.100	1748.	1588.	160.	1089.	1.
40.610	0.110	1859.	1690.	169.	1258.	1.
40.620	0.120	1971.	1792.	179.	1437.	1.
40.630	0.130	2083.	1893.	189.	1626.	1.
40.640	0.140	2194.	1994.	201.	1827.	2.
40.650	0.150	2306.	2093.	213.	2040.	2.
40.660	0.160	2418.	2191.	226.	2266.	2.
40.670	0.170	2529.	2289.	241.	2507.	2.
40.680	0.180	2641.	2385.	256.	2762.	2.
40.690	0.190	2753.	2481.	272.	3034.	3.
40.700	0.200	2864.	2576.	288.	3322.	3.
40.710	0.210	2976.	2671.	305.	3626.	3.
40.720	0.220	3088.	2766.	321.	3948.	3.
40.730	0.230	3199.	2861.	338.	4286.	4.
40.740	0.240	3311.	2957.	354.	4639.	4.
40.750	0.250	3422.	3054.	368.	5007.	4.
40.760	0.260	3534.	3153.	381.	5388.	4.
40.770	0.270	3646.	3255.	391.	5779.	5.
40.780	0.280	3757.	3361.	397.	6176.	5.
40.790	0.290	3869.	3472.	397.	6573.	5.
40.800	0.300	3981.	3596.	384.	6957.	6.
40.810	0.310	4092.	3736.	356.	7314.	6.
40.820	0.320	4204.	3875.	329.	7642.	6.
40.830	0.330	4316.	4014.	302.	7944.	7.
40.840	0.340	4427.	4153.	275.	8219.	7.
40.850	0.350	4539.	4290.	249.	8467.	7.
40.860	0.360	4651.	4427.	223.	8691.	7.
40.870	0.370	4762.	4563.	199.	8890.	7.
40.880	0.380	4874.	4698.	176.	9066.	7.
40.890	0.390	4986.	4832.	153.	9219.	8.
40.900	0.400	5097.	4965.	132.	9352.	8.
40.910	0.410	5209.	5096.	113.	9464.	8.
40.920	0.420	5321.	5227.	94.	9558.	8.
40.930	0.430	5432.	5355.	77.	9635.	8.
40.940	0.440	5544.	5483.	61.	9696.	8.
40.950	0.450	5656.	5609.	47.	9743.	8.
40.960	0.460	5767.	5733.	34.	9777.	8.
40.970	0.470	5879.	5856.	23.	9801.	8.
40.980	0.480	5990.	5977.	14.	9814.	8.
40.990	0.490	6102.	6096.	6.	9820.	8.
41.000	0.500	6214.	6214.	0.	9820.	8.

40VE*

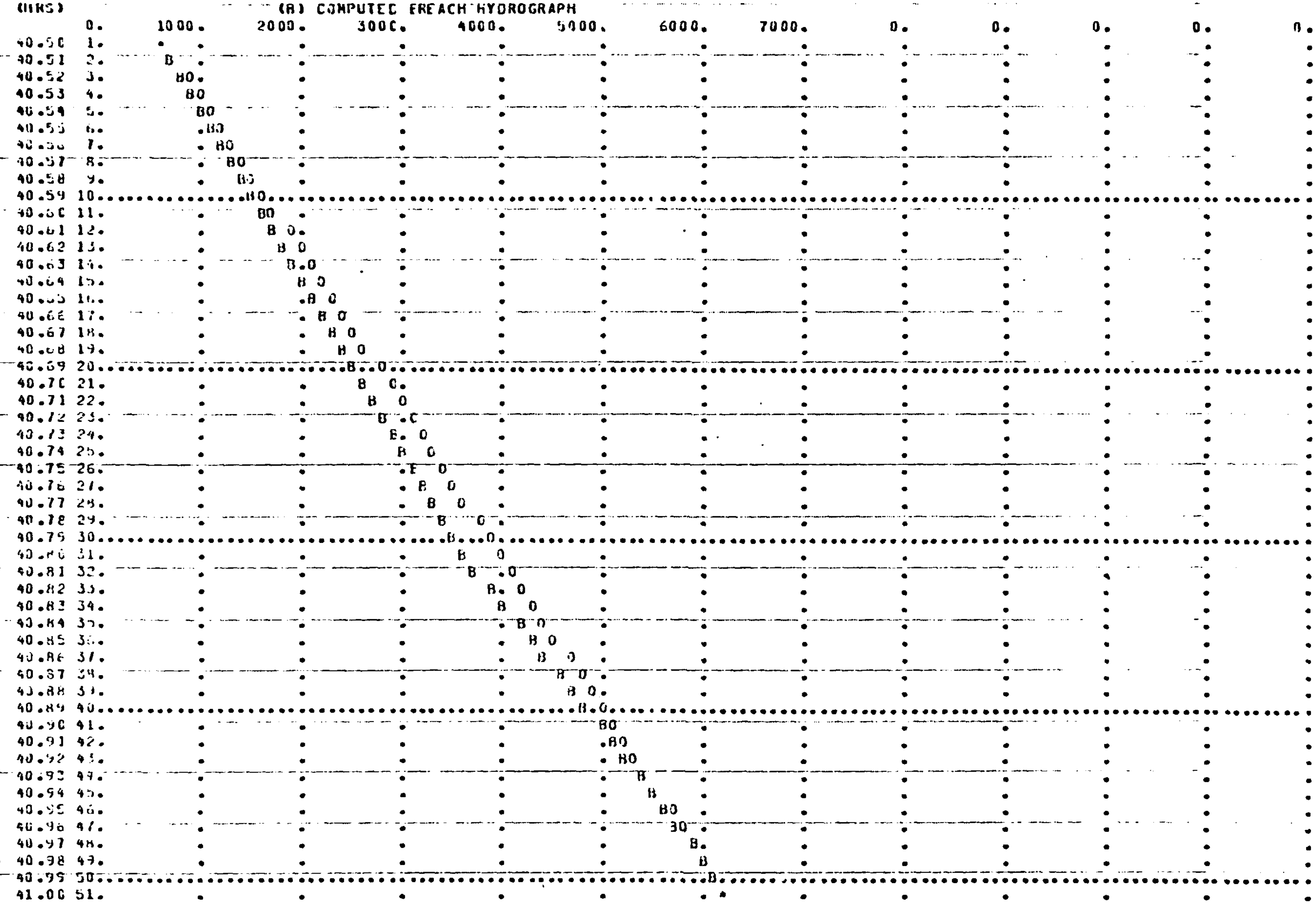
STATION DAM

TIME (HRS)

(O) INTERPOLATED BREACH HYDROGRAPH

(B) COMPUTED BREACH HYDROGRAPH

(*) POINTS AT NORMAL TIME INTERVAL



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.OVN.

          **********        **********        **********        **********        **********

                                          HYDROGRAPH ROUTING

                          REACH 1   DAM TO 210
                             ISTAQ   ICOMP   IECON   ITAPE   JPLT   JPRT   INAME  ISTAGE   IAUTC
                               32K       1       0       0      0      0       1       0       0
                                                 ROUTING DATA
                    QLOSS    CLOSS     AVG    IRES   ISAME   IOPT   IPMP                LSTR
                       0.       0.      0.       1       1      0      0                   0

                             NSTPS   NSTDL     LAG   AMSKK      X     TSK   STORA  ISPRAT
                                 1       0       0      0.     0.      0.      0.       0

NORMAL DEPTH CHANNEL ROUTING
----------------------------

       QN(1)    QN(2)    QN(3)    ELNVT    ELMAX    RLNTH     SEL
      0.0400   0.0400   0.0400    210.0    220.0    3200.  0.00810

       CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC
          20.00  219.00   50.00  213.00  150.00  212.00  150.00  210.00  165.00  210.00
         165.00  212.00  265.00  213.00  295.00  219.00

  STORAGE        0.       0.58      1.16      1.74      2.40      5.83     13.15     21.63     30.31     39.15
              48.28      57.57     67.06     76.76     86.66     96.76    107.07    117.58    128.21    138.84

  OUTFLOW        0.      16.49     50.18     94.79    149.07    277.48    624.39   1260.50   2104.40   3135.65
            4341.95    5714.83   7248.36   8938.15  10780.95  12774.26  14916.23  17205.48  19839.00  22546.21

  STAGE      210.00     210.53    211.05    211.58    212.11    212.63    213.16    213.68    214.21    214.74
             215.26     215.75    216.32    216.84    217.37    217.89    218.42    218.95    219.47    220.00

  FLOW           0.      16.49     50.18     94.79    149.07    277.48    624.39   1260.50   2104.40   3135.65
            4341.95    5714.83   7248.36   8938.16  10780.95  12774.26  14916.23  17205.48  19839.00  22546.21

                                  STATION     32K, PLAN 1, RTIO 1

                                              OUTFLOW
                0.      0.      0.      1.      1.      1.      1.      1.      1.      1.
                1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
                1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
                1.      1.      1.      1.      1.      1.      2.      2.      2.      2.
                3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
                3.      2.      2.      2.      2.      2.      2.      2.      2.      2.
                1.      1.      1.      1.      2.      2.      2.      3.      4.      5.
                6.      8.     10.     12.     15.     23.     34.     50.     79.    116.
              160.    210.    275.    318.    322.    326.    329.    332.    336.    338.
              340.    341.    342.    341.    341.    339.    338.    335.    333.    331.
              329.    326.    322.    318.    266.    192.    141.    103.     89.     76.
```

********** ********** ********** ********** **********

HYDROGRAPH ROUTING

REACH 2 210 TO 130 LOCAL ROAD

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
80K	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP		LSTR
0.	0.	0.	10000	10000	0	0		0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.	0.	0.	0.	0

NORMAL DEPTH CHANNEL ROUTING

QN(1)	QN(2)	QN(3)	ELNVT	ELMAX	RLNTH	SEL
0.0400	0.0400	0.0400	130.0	145.0	4800.	0.01670

CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC

90.00 144.00 100.00 134.00 150.00 133.00 150.00 130.00 165.00 130.00
165.00 133.00 215.00 134.00 225.00 144.00

STORAGE	0.	1.30	2.61	3.91	5.36	11.47	21.52	31.72	42.06	52.[illegible]
	63.15	73.50	84.79	95.81	106.97	118.27	129.71	141.29	152.99	164.74
OUTFLOW	0.	45.55	136.10	253.06	393.29	700.11	1452.39	2544.23	3918.43	5545.97
	7407.37	9488.41	11778.12	14267.76	16950.21	19819.58	22870.89	26099.93	29577.90	33447.61
STAGE	130.00	130.79	131.58	132.37	133.16	133.95	134.74	135.53	136.32	137.11
	137.89	138.68	139.47	140.26	141.05	141.84	142.63	143.42	144.21	145.00
FLOW	0.	45.55	136.10	253.06	393.29	700.11	1452.39	2544.23	3910.43	5545.97
	7407.37	9488.41	11778.12	14267.76	16950.21	19819.58	22870.89	26099.93	29577.90	33447.61

STATION 80K, PLAN 1, RTIO 1

OUTFLOW

0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	1.	1.	1.	1.	2.	2.	2.	3.	4.
5.	7.	5.	10.	13.	18.	27.	40.	66.	103.
145.	197.	256.	310.	323.	324.	328.	331.	335.	338.
340.	341.	342.	341.	341.	340.	338.	336.	334.	331.
329.	326.	323.	319.	283.	212.	153.	115.	93.	81.
70.	63.	57.	54.	51.	49.	46.	45.	43.	41.
39.	38.	36.	35.	33.	32.	31.	29.	28.	27.
26.	25.	24.	23.	22.	21.	20.	19.	19.	18.

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIO 1 0.20	RATIO 2 0.21	RATIO 3 0.22	RATIO 4 0.23	RATIO 5 0.24	RATIO 6 0.25	RATIO 7 0.50	RATIO 8 1.00
				RATIOS APPLIED TO FLOWS							
HYDROGRAPH AT	BASIN	2.19	1	634.	665.	697.	729.	760.	792.	1584.	3168.
		(2682.47)		(17.54)(	18.84)(	19.73)(	20.63)(	21.53)(	22.42)(	44.85)(	89.69)(
ROUTED TO	DAM	2.19	1	342.	5143.	5231.	5296.	5352.	5397.	5986.	6214.
		(2682.47)		(9.67)(	145.64)(	148.13)(	149.96)(	151.54)(	152.84)(	169.50)(	175.95)(
ROUTED TO	32K	2.19	1	342.	3499.	3618	3655.	3834.	3766.	4571.	4474.
		(2682.47)		(9.67)(	99.08)(	102.44)(	103.51)(	108.58)(	106.65)(	129.45)(	126.69)(
ROUTED TO	80K	2.19	1	342.	3258.	3356.	3442.	3482.	3573.	4418.	5049.
		(2682.47)		(9.67)(	92.25)(	95.04)(	97.47)(	98.59)(	101.17)(	125.10)(	142.98)(

MECHANICVILLE RESERVOIR DAM WITH BREACH
NY - 1061

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 ....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	263.00	263.00	268.50
STORAGE	201.	201.	322.
OUTFLOW	0.	0.	343.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
0.20	268.27	0.	317.	342.	0.	46.50	0.
0.21	268.61	0.11	324.	5143.	0.61	46.00	45.50
0.22	268.72	0.22	327.	5231.	0.65	45.50	45.00
0.23	268.72	0.22	327.	5296.	0.66	45.00	44.50
0.24	268.91	0.41	331.	5352.	1.19	45.00	44.50
0.25	268.79	0.29	328.	5397.	0.68	44.50	44.00
0.50	269.26	0.76	339.	5986.	0.78	42.50	42.00
1.00	269.12	0.62	336.	6214.	0.79	41.00	40.50

PLAN 1 STATION 32K

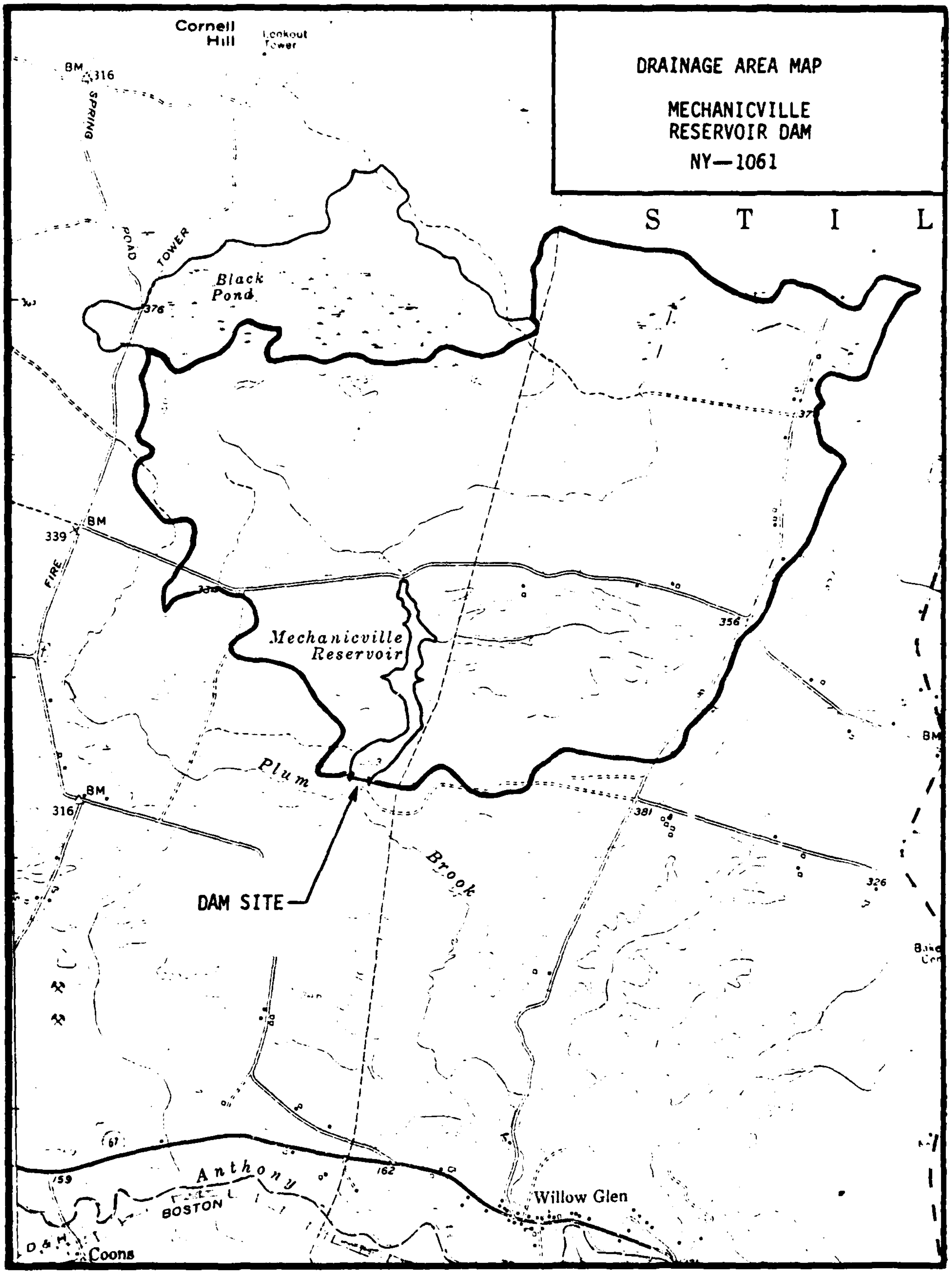
RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
0.20	342.	212.7	46.50
0.21	3499.	214.9	46.00
0.22	3618.	214.9	45.50
0.23	3659.	215.0	45.00
0.24	3834.	215.0	45.00
0.25	3766.	215.0	44.50
0.50	4571.	215.4	42.50
1.00	4474.	215.3	41.00

PLAN 1 STATION 80K

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
0.20	342.	132.7	46.50
0.21	3258.	135.9	46.50
0.22	335[illegible].	136.0	46.00
0.23	3442.	136.0	45.50
0.24	3482.	136.1	45.50
0.25	3573.	136.1	45.00
0.50	4418.	136.5	43.00
1.00	5049.	136.9	41.50

MECHANICVILLE RESERVOIR DAM WITH BREACH

NY - 1061



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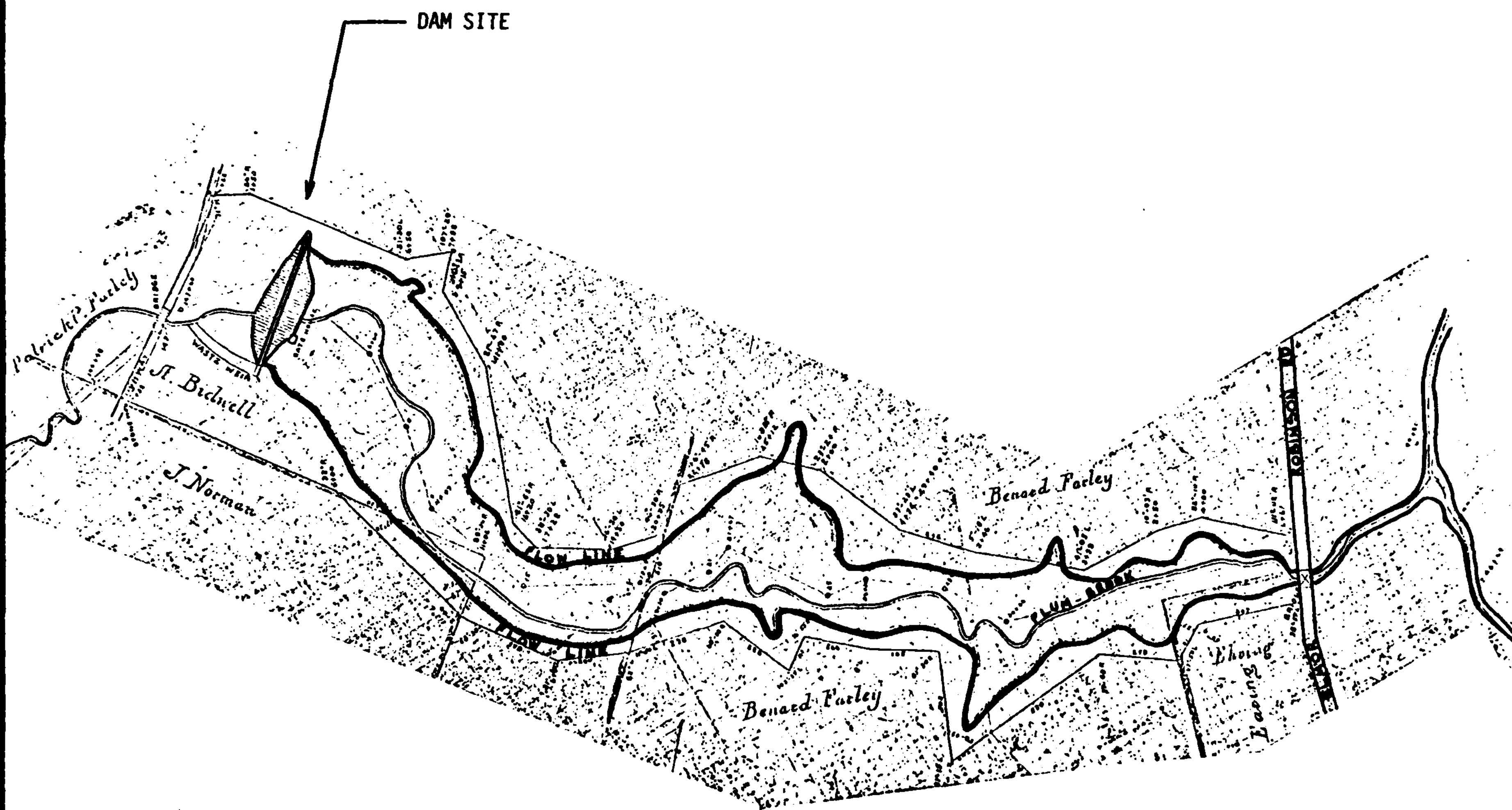


RESERVOIR AREA -- MECHANICVILLE RESERVOIR DAM NY--1061

Discharge measurements made at low-flow partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Hudson River basin -- Continued				
3287	Moses Kill near Fort Miller, N. Y.	Lat 43°12'12", long 73°33'06", at bridge on county highway, 3.2 miles northeast of Fort Miller.	37.9	1956-61	8- 2-61	3.72
3293	White Creek near Salem, N. Y.	Lat 43°09'07", long 73°21'18", at bridge on town road, 2.1 miles southwest of Salem.	48.6	1956-61	8- 9-61	8.11
3348	Owl Kill at Eagle Bridge, N. Y.	Lat 42°57'08", long 73°22'57", at bridge upstream from bridge on State Highway 67, at Eagle Bridge.	56.4	1911, 1956-61	7- 7-61 8-14-61	14.8 8.28
3357	Anthony Kill at Mechanicville, N.Y.	Lat 42°55'05", long 73°42'53", at 4th Highway bridge above State Highway 146, 1.8 miles above mouth at Mechanicville.	62.4	1954-61	8- 9-61	19.5
*3358	Mohawk River at Hillside, N. Y.	Lat 43°21'18", long 75°23'02", at bridge on Webster Hill road, 100 ft upstream from Lansing Kill, at Hillside.	48.8	1956-61	7-11-61	25.9
3380	Oriskany Creek near Oriskany, N. Y.	Lat 43°08'36", long 75°20'17", at bridge on county highway, 1.1 miles south of Oriskany.	145	1901-4♯ 1955, 1960-61	7-12-61 8-18-61	92.9 56.9
3388	Sauquoit Creek at New Hartford, N. Y.	Lat 43°04'28", long 75°17'12", at bridge on State Highways 5 and 12, at New Hartford.	43.4	1955-56, 1958-61	8- 9-61	29.9
3427	Moyer Creek at Frankfort, N. Y.	Lat 43°02'30", long 75°04'18", at bridge on State Highway 5-S, at Frankfort.	21.8	1954, 1956-61	8- 9-61	5.93
3427.9	South Branch West Canada Creek near Morehouseville, N.Y.	Lat 43°23'59", long 74°44'30", at bridge on Martin's Mountain Home Road, 0.3 mile downstream from Wilmurt Lake Outlet, 0.35 mile north of State Highway 8, 1.7 miles northeast of Morehouseville, and 5¼ miles upstream from mouth.	40.2	1961	7-11-61 7-11-61 9-15-61 9-28-61	26.2 25.1 20.6 4.10
*3428	West Canada Creek at Nobleboro, N. Y.	Lat 43°23'47", long 74°51'35", at bridge on State Highway 8, at Nobleboro.	192	1956-57, 1959-61	7-11-61 9-28-61	134 43.2
3472	East Canada Creek at Emmonsburg, N. Y.	Lat 43°09'14", long 74°42'45", at bridge on County Highway 104, at Emmonsburg.	101	1956-61	8-10-61	36.9
3492	Canajoharie Creek at Canajoharie, N. Y.	Lat 42°54'19", long 74°34'18" at foot bridge near intersection of Hill and Mill Streets, at Canajoharie.	68.4	1949-50, 1956-61	8- 8-61	8.16
3496	Schoharie Creek near Hunter, N. Y.	Lat 42°11'31", long 74°10'52", at bridge on State Highway 214, 2.4 miles southeast of Hunter.	29.2	1957-61	9-25-61	8.12
3497	East Kill near Jewett Center, N. Y.	Lat 42°14'57", long 74°18'11", at bridge on Lexington-Jewett highway, 1.2 miles northeast of Jewett Center, and 1.3 miles above mouth.	35.2	1955-61	9-25-61	5.08
3498	West Kill at West Kill, N. Y.	Lat 42°12'42", long 74°23'16", at bridge on State Highway 42, at West Kill.	21.2	1956-61	9-25-61	3.35
3499	Batavia Kill near Ashland, N. Y.	Lat 42°17'36", long 74°18'19", at bridge on Ashland-Jewett highway, 0.2 mile south State Highway 23, 1.6 miles southeast of Ashland.	51.2	1955-61	9-25-61	4.50

* Also a crest-stage partial-record station.
♯ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1962--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements Date	Measurements Discharge (cfs)
		Hudson River basin				
*3199.5	Sand Lake Outlet near Piseco, N. Y.	Lat 43°22'15", long 74°32'47", at bridge on State Highway 10, 0.9 mile upstream from mouth, and 5.5 miles south of Piseco.	7.16	1962	7-30-62 9-25-62	0.76 .82
3335.2	Dill Creek near Petersburg, N. Y.	Lat 42°45'47", long 73°21'23", at bridge on county road, 0.3 mile east of Stillham hamlet, 1.0 mile northwest of Petersburg, and 1.1 miles upstream from mouth.		1962	8-9-62 8-23-62	.15 .10
3357	Anthony Kill at Mechanicville, N. Y.	Lat 42°55'05", long 73°42'53", at 4th Highway bridge above State Highway 146, 1.8 miles above mouth at Mechanicville.	62.4	1954-62	9-21-62	9.77
3357.5	Deep Kill at Melrose, N.Y.	Lat 42°49'52", long 73°37'35", at bridge on State Highway 40, at Grant Hollow, 0.3 mile upstream from unnamed tributary and 0.7 mile south of Melrose.		1962	7-20-62 8-9-62	.66 .22
3427.9	South Branch West Canada Creek near Morehouseville, N. Y.	Lat 43°23'59", long 74°44'30", at bridge on Martin's Mountain Home Road, 0.3 mile downstream from Wilmurt Lake Outlet, 0.35 mile north of State Highway 8, 1.7 miles northeast of Morehouseville, and 5 3/4 miles upstream from mouth.	40.2	1961-62	6-27-62 8-16-62	15.2 33.0
*3509	Beaverdam Creek near Knox, N. Y.	Lat 42°38'57", long 74°07'56", at bridge on farm road 1.2 miles south of Knox, and 1.7 miles upstream from mouth.		1962	7-26-62	.01
*3509.5	Switz Kill near Berne, N. Y.	Lat 42°36'41", long 74°09'24", at bridge on county highway, 1.2 miles upstream from mouth, and 1.3 miles southwest of Berne.		1962	7-25-62	.49
3515.1	Bowman Creek at Burtonsville, N. Y.	Lat 42°48'19", long 74°14'50", at culvert on Eaton Corners Road, 0.5 mile east of Schoharie Creek bridge at Burtonsville, and 0.7 mile upstream from mouth.		1962	7-20-62 8-13-62	0 .01
3540.8	South Chuctanunda Creek at Amsterdam, N. Y.	Lat 42°56'04", long 74°12'44", at bridge on Florida Street, at Amsterdam, 0.2 mile downstream from State Highway 5S and 0.7 mile upstream from mouth.	31.7	1961-62	6-27-62 7-20-62 8-15-62	.42 .07 .83
*3542	Sandsea Kill at Pattersonville, N. Y.	Lat 42°53'20", long 74°04'42", at bridge on State Highway 5S, at Pattersonville.	9.56	1957, 1959-62	7-19-62	0
3544.7	Poentic Kill at Schenectady, N. Y.	Lat 42°48'31", long 73°59'32", at bridge on Campbell Road at Schonowe, and 0.7 mile northwest of Schenectady City Line.		1962	7-19-62 8-13-62	2.78 5.18
3549.5	Crabb Kill near Glenville, N. Y.	Lat 42°55'58", long 74°01'00", at bridge on State Highway 147, 500 ft downstream from Fallentree Kill and 1.8 miles east of Glenville.		1962	7-20-62 8-15-62	0 .19
3554.5	Indian Kill near Alplaus, N. Y.	Lat 42°52'12", long 73°54'18", at bridge on Hetcheltown Road at Glenridge, 0.2 mile upstream from mouth, and 1.1 miles north of Alplaus.		1962	7-19-62 8-13-62	.50 1.74
3563	Shaker Creek near Latham, N. Y.	Lat 42°45'49", long 73°47'33", 500 ft downstream from unnamed tributary 1,000 ft downstream from State Highway 7, 1 1/4 miles upstream from mouth, and 1 3/4 miles west of Latham.	11.2	1960-62	4-27-62	8.13
*3591	Wynants Kill at Wynantskill, N. Y.	Lat 42°41'44", long 73°38'44", at bridge on Brookside Avenue, at Wynantskill, 0.4 mile upstream from unnamed tributary, and 4 miles upstream from mouth.	29.1	1961-62	4-27-62 6-20-62 7-5-62 8-9-62 8-17-62 8-24-62 9-5-62 9-25-62	19.6 8.56 5.52 5.64 5.14 5.44 5.51 4.63
3591.1	Jordan Creek at Troy, N. Y.	Lat 42°41'15", long 73°41'38", 125 ft downstream from Jordan Road, 0.5 mile south of city line of Troy.	.65	1960-62	4-27-62 7-6-62 8-9-62	.39 .13 .11

* Also a crest-stage partial-record station.

Discharge measurements made at miscellaneous sites during water year 1973--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements Date	Discharge (cfs)
		Hudson River basin--Continued				
01330905 Fish Creek	Hudson River	Lat 43°06'24", long 73°37'02", Saratoga County, at bridge on State Highway 29, in Grangerville 0.2 mile east of DeGarmo Road and 2.9 miles upstream from mouth.	-	-	3- 1-73 4- 7-73 5- 4-73 6- 1-73 7-10-73 8- 6-73 9- 7-73	285 1,470 480 734 173 124 89
01333350 Hoosic River	Hudson River	Lat 42°48'33", long 73°17'12", Bennington County, Vt. at bridge on State Highway 346 on N.Y.-Vt. State Line, 1.3 miles northwest of North Pownal.		1965 1967-73	4-10-73	1710
01335639 Ballston Creek	Round Lake	Lat 42°56'29", long 73°47'26", Saratoga County, at bridge on Goldfoot Road in Round Lake 0.3 mile upstream from mouth.	17.8	-	3- 3-73 4- 7-73 5- 7-73 5-31-73 7-10-73 8- 6-73 9-14-73	5.5 95 12 26 6.5 .79 .22
01335640 Ballston Creek	Round Lake	Lat 42°56'22", long 73°47'22", Saratoga County, at bridge on Maltaville Road at Round Lake, and 0.1 mile upstream from mouth.	197			
01335651 Luther Brook	Round Lake	Lat 42°56'41", long 73°47'04", Saratoga County, at culvert on Maltaville Road in Maltaville, and 0.3 mile upstream from mouth.	3.89	-	3- 3-73 4- 7-73 5- 7-73 5-31-73 7-10-73 8- 6-73 9-14-73	4.0 6.4 4.2 5.8 3.6 3.3 3.2
01335653 Round Lake Tributary #1	Round Lake	Lat 42°55'57", long 73°47'28", Saratoga County, at culvert on U.S. Highway 9 in Round Lake 0.1 mile upstream from mouth.	.60	-	3- 2-73 4- 6-73 5- 7-73 5-31-73 7-10-73 8- 6-73 9-14-73	.54 3.0 .44 1.3 .23 .23 .08
01335657 Round Lake Tributary #2	Round Lake	Lat 42°55'43", long 73°47'30", Saratoga County, at culvert on U.S. Highway 9 0.2 mile upstream from mouth, and 0.7 mile south of Round Lake.	2.19	-	3- 2-73 4- 6-73 5- 7-73 5-31-73 7-10-73 8- 6-73 9-14-73	1.0 7.2 1.3 4.6 .58 .56 .49
01335660 Round Lake Tributary #3	Round Lake	Lat 42°56'15", long 73°46'15", Saratoga County, at culvert on State Highway 67 0.2 mile upstream from mouth, and 0.8 mile southeast of Maltaville.	.87	-	2- 8-73 3- 3-73 4- 7-73 5- 7-73 5-31-73 7-10-73 8- 6-73 9-14-73	.70 1.2 2.1 .32 1.8 .13 .07 .02
01335698 Anthony Kill	Hudson River	Lat 42°53'13", long 73°44'50", Saratoga County, at Coons, at bridge on Coons crossing road 0.2 mi south of State Highway 67 and 2.5 mi west of Mechanicville and 4.2 mi upstream from mouth.	64.6	1973	3- 3-73 4- 7-73 5- 7-73 5-31-73	40 330 50 135
01350101 Schoharie Creek	Mohawk River	Lat 42°23'51", long 74°27'02", Schoharie County, at bridge on County Highway 342, 0.2 mile west of village of Gilboa, and 0.4 mile downstream from Gilboa Dam.	-	1969-72	5-14-73 7-27-73 8-30-73	808 1.1 .42
01350120 Platter Kill	Schoharie Creek	Lat 42°24'15", long 74°26'38", Schoharie County, at culvert on county road, 0.5 mile upstream from mouth, and 0.6 mile northeast of Gilboa.	-	1969-72	10- 3-72 3- 7-73 4-11-73 5-15-73 7-27-73 8-30-73	1.3 13 49 16 6.4 1.9

Discharge measurements made at miscellaneous sites during water year 1974--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements Date	Measurements Discharge (cfs)
		Hudson River basin--Continued				
01335[illegible]90 Hudson River Tributary #28	Hudson River	Lat 42°54'57", long 73°40'46", Saratoga County, at bridge on U.S. Highway 4, in Riverside, 100 feet (30 m) upstream from mouth, and 0.3 mile (0.5 km) northeast of Mechanicville.			8-16-74	a 0
01335639 Ballston Creek	Round Lake	Lat 42°56'29", long 73°47'26", Saratoga County, at bridge on Goldfoot Road in Round Lake 0.3 mile (0.5 km) upstream from mouth.	17.8	1973	10- 9-73	1.99
01335651 Luther Brook	Round Lake	Lat 42°56'41", long 73°47'04", Saratoga County, at culvert on Maltaville Road in Maltaville, and 0.3 mile (0.5 km) upstream from mouth.	3.89	1973	10- 9-73	3.0
01335653 Round Lake Tributary #1	Round Lake	Lat 42°55'57", long 73°47'28", Saratoga County, at culvert on U.S. Highway 9, in Round Lake 0.1 mile (0.2 km) upstream from mouth.	.60	1973	10- 9-73	T
01335657 Round Lake Tributary #2	Round Lake	Lat 42°55'43", long 73°47'30", Saratoga County, at culvert on U.S. Highway 9, 0.2 mile (0.3 km) upstream from mouth, and 0.7 mile (1.1 km) south of Round Lake.	2.19	1973	10- 9-73	.40
01335660 Round Lake Tributary #3	Round Lake	Lat 42°56'15", long 73°46'15", Saratoga County, at culvert on State Highway 67, 0.2 mile (0.3 km) upstream from mouth, and 0.8 mile (1.3 km) southeast of Maltaville.	.87	1973	10- 9-73	T
01335698 Anthony Kill	Hudson River	Lat 42°53'13", long 73°44'50", Saratoga County, at Coons, at bridge on Coons crossing road, 0.2 mile (0.3 km) south of State Highway 67, and 2.5 miles (5.6 km) west of Mechanicville, and 4.2 miles (6.8 km) upstream from mouth.	64.6	1973	10- 9-73	15
01335703 Anthony Kill	Hudson River	Lat 42°54'13", long 73°41'10", Saratoga County, at bridge on U.S. Highway 4, 0.1 mile (0.2 km) upstream from mouth, and 0.3 mile (0.5 km) south of State Highway 67.			8-16-74	a 11.5
01335707 Hudson River Tributary #29	Hudson River	Lat 42°53'13", long 73°41'14", Saratoga County, at bridge on U.S. Highway 4, at Mechanicville city line, 0.3 mile (0.5 km) upstream from mouth, and 1.4 miles (2.2 km) south of State Highway 67.			8-16-74	a 0.25
01335709 Hudson River Tributary #30	Hudson River	Lat 42°53'06", long 73°41'09", Saratoga County, at culvert on U.S. Highway 4, 300 feet (91 m) upstream from mouth, 0.2 mile (0.3 km) south of Mechanicville, and 1.7 miles (2.7 km) south of Mechanicville.			8-16-74	a 0
01335712 Hudson River Tributary #31	Hudson River	Lat 42°52'47", long 73°41'01", Saratoga County, at bridge on U.S. Highway 4, 0.1 mile (0.2 km) upstream from mouth, 0.6 mile (1.0 km) south of Mechanicville, and 2.1 miles (3.4 km) south of State Highway 67.			8-16-74	a 0.17
01335720 Hudson River Tributary #32	Hudson River	Lat 42°51'47", long 73°40'42", Saratoga County, at bridge on U.S. Highway 4, 250 feet (76 m) upstream from mouth, and 2.4 miles (3.9 km) southeast of Newtown.			8-16-74	a e 0.15
01335730 McDonald Creek	Hudson River	Lat 42°51'07", long 73°40'37", Saratoga County, at bridge on U.S. Highway 4, 0.1 mile (0.2 km) upstream from mouth, and 2.7 miles (4.3 km) southeast of Newton.			8-16-74	a 1.8
01335740 Hudson River Tributary #33	Hudson River	Lat 42°50'22", long 73°40'30", Saratoga County, at bridge on U.S. Highway 4, 0.1 mile (0.2 km) upstream from mouth, and 2.5 miles (4.0 km) west of Melrose.			8-16-74	a 0.76
01335744 Hudson River Tributary #34	Hudson River	Lat 42°50'04", long 73°40'12", Saratoga County, at bridge on U.S. Highway 4, 400 feet (122 m) upstream from mouth, 2.2 miles (3.5 km) west of Grant Hollow, and 2.6 miles (4.2 km) northeast of Waterford.			8-16-74	a e 0.5

a A general ephemeral study made on August 16 of all stream channels in a localized area.
e Estimated.
T Trace.

01335698	Anthony Kill at Coons	42 55 13	73 41 50	091	64.6	3- 3-73	*40.1
						4- 7-73	330
						5- 7-73	50.1
						5-31-73	135
						7-10-73	*9.15
						8- 6-73	21.8
						9-14-73	*12.1
						10- 9-73	*15.4
01335700	Anthony Kill at Mechanicsville (includes Plum Brook watershed)	42 55 05	73 42 53	091	62.4	5-26-54	*123
						9- 2-54	*31.5
						9-15-54	*19.5
						9-27-54	*18.7
						10-17-54	*28.6
						8-16-56	*10.6
						8-30-56	*12.5
						5-10-57	*22.3
						8-14-58	*11.0
						10-10-58	*12.5
						4- 2-59	*210
						4-22-59	*73.1
						6- 6-60	*213
						8- 9-60	*23.6
						8- 9-61	*19.5
						9-21-62	*9.77
01335703	Anthony Kill at Mechanicville	42 54 13	73 41 10	091		8-16-74	*11.5
01335707	Hudson River tributary no. 29 at Mechanicville	42 53 13	73 41 14	091		8-16-74	*.25
01335709	Hudson River tributary no. 30 at Mechanicville	42 53 06	73 41 09	091		8-16-74	0
01335712	Hudson River tributary no. 31 at Mechanicville	42 52 47	73 41 01	091		8-16-74	*.17
01335720	Hudson River tributary no. 32 near Newtown	42 51 47	73 40 42	091		8-16-74	*.15
01335730	McDonald Creek near Newtown	42 51 07	73 40 37	091		8-16-74	*1.8
01335740	Hudson River tributary no. 33 near Melrose	42 50 22	73 40 30	091		8-16-74	*.76
01335744	Hudson River tributary no. 34 near Waterford	42 50 04	73 40 12	091		8-16-74	*a.05
01335760	Hudson River tributary no. 35 near Waterford	42 49 00	73 39 57	091		8-16-74	*a.3
01335785	Mohawk River, West Branch, at West Branch.	43 22 05	75 28 52	065		7-17-68	*9.90
						9-17-68	*9.59
01335800	Mohawk River at Hillside	43 21 18	75 23 02	065	48.8	7-20-56	*28.7

APPENDIX D

REFERENCES

APPENDIX D

REFERENCES

1) B.B. Eissler; Low-Flow Frequency Analysis of Streams in New York - Bulletin 74; U.S. Geological Survey 1979.

2) P.E. Kent; Luther Forest Environmental Impact Statement, 1978.

3) H.W. King and E.F. Brater, Handbook of Hydraulics, 5th edition, McGraw-Hill, 1963.

4) University of the State of New York, Geology of New York, Education Leaflet 20, Reprinted 1973.

U.S. Army Corps of Engineers:

5) HEC-1 Flood Hydrograph Package - Dam Safety Version, September 1978.

6) Engineering Manual 1110-2-1405; Flood-Hydrograph Analyses and Computation, August 1959.

7) U.S. Department of Agriculture, Soil Conservation Service; National Engineering Handbook;Section 4 -Hydrology, August 1972.

8) US Department of Commerce; Weather Bureau: Hydrometeorological Report No. 33: Seasonal Variation of the Probable Maximum Precipitation East of the 105th Meridian for Areas from 10 to 1,000 Square Miles and Durations of 6,12,24, and 48 hours, April 1956.

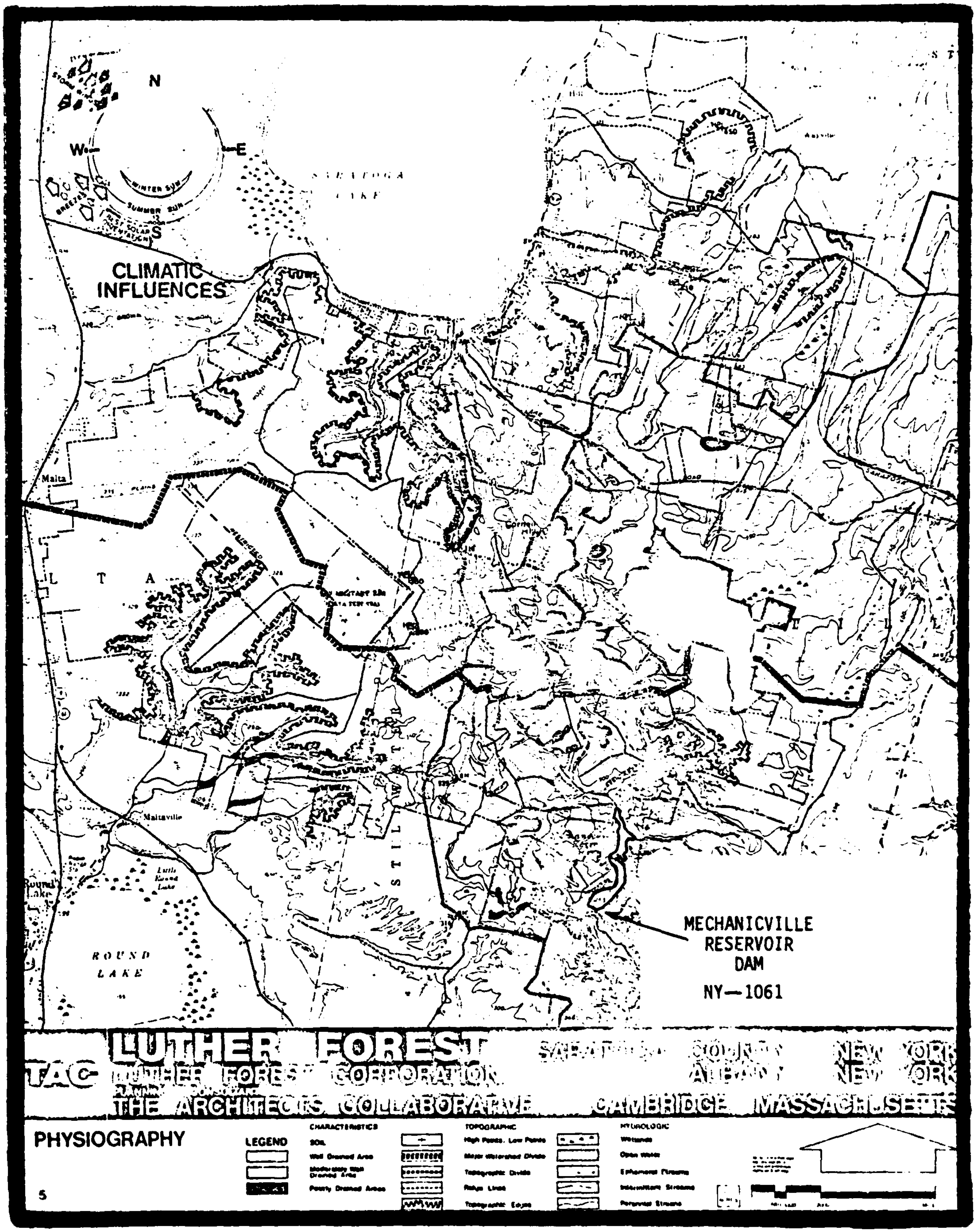
9) US Department of Interior; BUREC Design of Small Dams, 2nd edition (rev.reprint), 1977.

US Geological Survey:

10) Water Resources Data for New York - 1961; Part 1-Surface Water Records
11) Water " " " " " - 1962;
12) Water " " " " " - 1973:
13) Water " " " " " - 1974;

APPENDIX E

DRAWINGS AND RELATED DOCUMENTS


N
W
E
S
WINTER SUN
SUMMER SUN
CLIMATIC INFLUENCES
Malta
Maltaville
ROUND LAKE
MECHANICVILLE
RESERVOIR
DAM
NY—1061
LUTHER FOREST
NEW YORK
TAC
LUTHER FOREST CORPORATION
NEW YORK
THE ARCHITECTS COLLABORATIVE
CAMBRIDGE MASSACHUSETTS
PHYSIOGRAPHY
LEGEND
CHARACTERISTICS
SOIL
TOPOGRAPHIC
HYDROLOGIC
5

Section III sewage will be handled by approved on-site sewage disposal systems.

3. Storm Water System

Section I storm water drainage occurs primarily vertically through the highly porous sand to a water table of 20 ft. below the surface and then runs horizontally to the mouth of the ravines where it emerges as streams which run either northerly to Saratoga Lake or southerly to Round Lake. No water in Section I drains into Section II.

Section II lies in four watersheds: A small portion in its southwesterly corner drains to Round Lake, its northwest corner drains to Saratoga Lake, its northeasterly corner drains into Schuyler Creek, and its southeasterly corner drains to the Mechanicville Reservoir and Plum Brook. Obviously drainage toward the Mechanicville Reservoir and Plum Creek is environmentally sensitive since these are water sources for the City of Mechanicville. The environmental impacts will be properly addressed and mitigated in the environmental impact statement on Section II.

Section III has 980 acres in the Saratoga Lake watershed; 66 acres are in the Schuyler Creek watershed.

4. Traffic

Section I traffic will be directed by way of Plains Road and Dunning St. onto either Route 9 or Northway Exit 12. A small portion of the traffic from the northern end of Section I may create traffic on Plains Road to Route 9P to Route 9 to Exit 13.

Section II northbound traffic will be directed to Lake Road, 9P, 9, and then Exit 13. Southbound traffic from Section II will be directed to Route 67 to Route 9 to Exit 10 on the Northway. Westbound traffic will use either the northbound or southbound route to Route 9 and then to Route 67. Eastbound traffic from Section II is adequately served by existing roads.

7. Zoning

A Master Plan (Figure 4), has been prepared on all three sections.

Section I also has been re-zoned in accordance with the zoning plan, (Figure 5), and a site plan (Figure 6), attached. It can be seen from the site plan that the option to use Area 4 of the zoning map as a light manufacturing area has been taken and that the current market conditions indicate that Areas 1, 2, and 3 will be predominantly and perhaps exclusively single family detached homes. The rest of the area in Section I north of Dunning St. may or may not develop with the housing mix shown.

Section II has neither been re-zoned nor planned beyond the Master Plan shown in Figure 4.

Section III, the first subdivision of 10 mini-estates, was approved on May 16, 1977 and is attached as Figure 7. All 10 lots in the first subdivision have been sold. The second subdivision consisting of Mini-estates Nos. 11 - 22 was approved by the Stillwater Planning Board on June 19, 1978, and is attached as Figure 8. All the land within Section III is already zoned rural residential which permits a single family dwelling on one acre lots with 150 ft. of frontage. As can be seen on the first two mini-estate subdivision maps attached as Figures 7 and 8, the mini-estates exceed the zoning specifications.

8. Statement Supporting Separation of Luther Forest into Three Distinct Sections

It has been demonstrated above that the environmental and engineering factors are separate for each of the three sections of this project. Therefore it is concluded that the public's interests are best served by reviewing Luther Forest as three separate and distinct projects with primary impact on different communities and facilities.

In addition to the logical geographic and political separation of these three areas for the purposes of such a statement, is the question of timing. It would perhaps be to the developer's best interests "to sweep" Section II through along with the approval of Section I because environmental laws are continually becoming more stringent. However, this would require projecting unknowns so far into the future that the statement would really be of marginal value for planning purposes. The Section I rate of development is limited to a maximum of 200 residential units per year by Section 7 of the Planned Development District Legislation (attached as Appendix B). This implies that it would be at least 8 years before construction occurs in Section II. The developer feels that a more accurate and valid environmental impact statement can be written on Section II after observing the actual experience with implementation of Section I.

As shown above, Section III exceeds existing zoning requirements, is of low density (consisting of approximately 110 mini-estates widely distributed over 1,046 acres) and is based on known well and septic system information in the area. Further, from the experience drawn from the demographic profiles of the purchasers of the first 10 mini-estates in Section III it is clear that these are primarily purchased by working professional couples with no children.

In the developer's view the preparation of an environmental impact statement on Section III would not result in identifying any adverse environmental impact or alter the planning in any meaningful way. Therefore, this environmental impact statement will cover only Section I (Malta).

C. Type of Action

Luther Forest received Planned Development District zoning approval from the Town Board of Malta on August 30, 1977. New zoning is best shown by the map and tables already attached as Figure 5. The legislation enabling this rezoning

soils on the property are deep and moderately to rapidly permeable. Over two-thirds of the property is covered by the Colonie series of soils; these are deep, well to excessively drained, very strongly acidic, coarse textured soils. Muck soil, essentially undrained organic matter, silt and clay, is found in closed depressions. Other less well drained soils are located primarily in topographic lows such as swales and stream valleys.

In addition to differentiating among soil types, the attached soils map, Figure 9, indicates erosion potential and slope. U.S.D.A. Soil Conservation Service nomenclature are used on the map. Figure 10 lists the U.S.D.A. constraints for each soil.

Brief soil descriptions from data provided by the U.S.D.A. Soil Conservation Service of the major soil types found in Luther Forest follow:

<u>Alluvial Land</u>: Alluvial land is made up of materials that have washed from adjacent uplands. It occurs along minor streams on small terraces and nearly flat, narrow bottoms of stream valleys. Drainage ranges from good to very poor. Most alluvial land is made up of recent soil material; however, materials from remnants of small terraces are included in some areas.

<u>Colonie Series</u>: Colonie soils are deep, well to excessively drained, very strongly acidic, coarse textured soils that have formed in deltaic or aeolian sands. They occupy nearly level to gently rolling areas and moderately steep to steeply dissected landforms. Colonie soils have 4 to 12 feet or more of rapidly permeable, yellowish-brown fine sands and loamy fine sands that contain moderately permeable, thin brown bands of finer textured material.

<u>Hoosic Series</u>: These are deep, well-drained, strongly acidic, gravelly soils developed on stratified outwashes which are composed chiefly of acidic slates, shale and sandstone. They occupy nearly level to steeply rolling areas. Hoosic soils have from 2 to 3 feet of rapidly permeable, yellowish-brown, gravelly loam and sandy loam over very rapidly permeable stratified sand and gravel.

<u>Hudson Series</u>: Hudson soils are deep, moderately well to well drained, medium acid to neutral, fine textured soils that form in calcareous clayey glacial lake deposits. They occupy level to dissected lake plains. Hudson soils have 1 to 2 feet of moderately to slowly permeable silt loam or silty clay loam over slowly permeable silty clay to a depth of 3½ feet. These materials are underlain by slowly permeable lake-laid deposits consisting of layers of silty clay or clay separated by thinner silty layers.

<u>Muck</u>: These are areas of undifferentiated kinds of organic soils. They include areas of mostly decomposed muck from woody plants, sedges, reeds, cattails and rushes as well as more limited areas of almost undecomposed peat. These deposits vary from more than 20 inches to 20 feet thick, over clay, marl or sand. They occur in closed depressions that have remained undrained for the most part.

<u>Stafford Series</u>: Stafford soils are deep, somewhat poorly drained, strongly to slightly acidic, coarse textured soils that formed in moderately acidic to neutral deltaic or aeolian sands. They occupy nearly level to gently sloping areas of sandy deltas and plains. Stafford soils have 1/2 to 1 foot of loamy fine sand over 3 to 10 feet of rapidly permeable loamy fine sand or fine sand.

..."it is the intent of the Legislature that all agencies conduct their affairs with an awareness that they are the stewards of the air, water, land and living resources and that they have an obligation to protect the environment for the use and enjoyment of this and all future generations."

It is felt that through the new Environmental Laws and through cooperation, both ERDA and Luther can function to provide new jobs and maintain a high sensitivity to the quality of the environment.

II. ENVIRONMENTAL FACTORS AND IMPACTS

A. Geology and Soils

1. Geological character, bedrock and surficial

The rock underlying Luther Forest consists primarily of black shale with local interbedded sandstone. Canojoharie shale underlies most of the tract while the Austin Glen and Mount Merino Formations underlie part of the east side of the property. Bedrock is exposed in several places in or adjacent to Luther Forest. Elsewhere bedrock lies buried beneath thick glacial lake and aeolian sediments generally to a depth of 50 to 200 feet, even in the ravines. Bedrock in the central and western portions of the property is crossed by the north-south trending main channel of the preglacial Hudson River known as the Colonie Channel. The deepest part of the channel is estimated to be below elevation 100 feet or well over 200 feet beneath the surface.

A generalized bedrock topography map for eastern Saratoga County, adapted from Stearns and Wheler, 1968, is shown on Page 41 of Exhibit 10.

2. Soils Characteristics

The major portion of the Luther Forest is covered by deltaic and aeolian sands (see Figure 9). Most of the

The area is not well suited to agricultural use. The Colonie fine sandy loam soil which covers over two-thirds of the project area is well drained (dry) and does not support an abundant plant life.[1]

3. Slopes and Topography

Slopes vary from near 0% on flat terraces up to 60% in deeply dissected ravines. With the exception of steep slopes the potential for soil erosion, mass wasting and run-off are low throughout the Luther Forest.

Figure 11 is a topographic map of the Luther Forest and adjacent land.

4. Landforms

Landforms within Luther Forest reflect clearly the strong influence of glaciation as well as post-glacial surficial processes. During glaciation drainage of the ancestral Hudson River was blocked south of Kingston, New York, creating a large lake known as Lake Albany, which extended well north of the site. Fine sand, silt and clay were deposited in the Lake, blanketing hundreds of square miles. Additional unconsolidated sediment was deposited on and around Luther Forest by a southward flowing stream which entered Lake Albany near the south end of what is now Saratoga Lake, creating an extensive delta known as the Malta Delta. Surficial expression of this delta, which comprises a major portion of the Luther tract, is a plain highest directly south of Saratoga Lake, decreasing gradually in elevation to the southeast and west. Average elevation of the plain is 350 feet above sea level. Several hills reach 430 feet. Streams emanating radially from the central portion of the site have downcut the unconsolidated fine sands to elevations as low as 207 feet, forming narrow, steep-sided ravines.

[1]Letter from James A. Moredock, Agronomist -to- William R. Mackay, May 2, 1978 (See Figure 21)

Developer assures city he will consult it on project plan

6-18-78

By CLAYTON BOYCE
Staff Writer

MECHANICVILLE — The developer of the 6,800 acre Luther Forest housing project assured city officials Wednesday he will consult them before beginning construction of the Stillwater section of the project.

The city officials are concerned that the drilling of wells to supply the Stillwater section with water will threaten the city's reservoir.

William R. Mackay, president of the Luther Forest Corporation, said he has withdrawn applications for the the Stillwater section of the development, and it will be at least two years before construction of the section begins. "When we start working on the Stillwater section, we'll come to you." Mackay promised during a meeting with the City Council.

Mackay and D. Theodore Clark, a hydro-geologist hired by the Luther Forest Corporation, said the 2,157 acre Malta section of the development will have no effect on the city's resorvoir in the Town of Stillwater. Clark said wells drilled at a sandy site off Knapp Road near Maltaville will provide 600 to 700 gallons per minute, enough for the Malta section of the development.

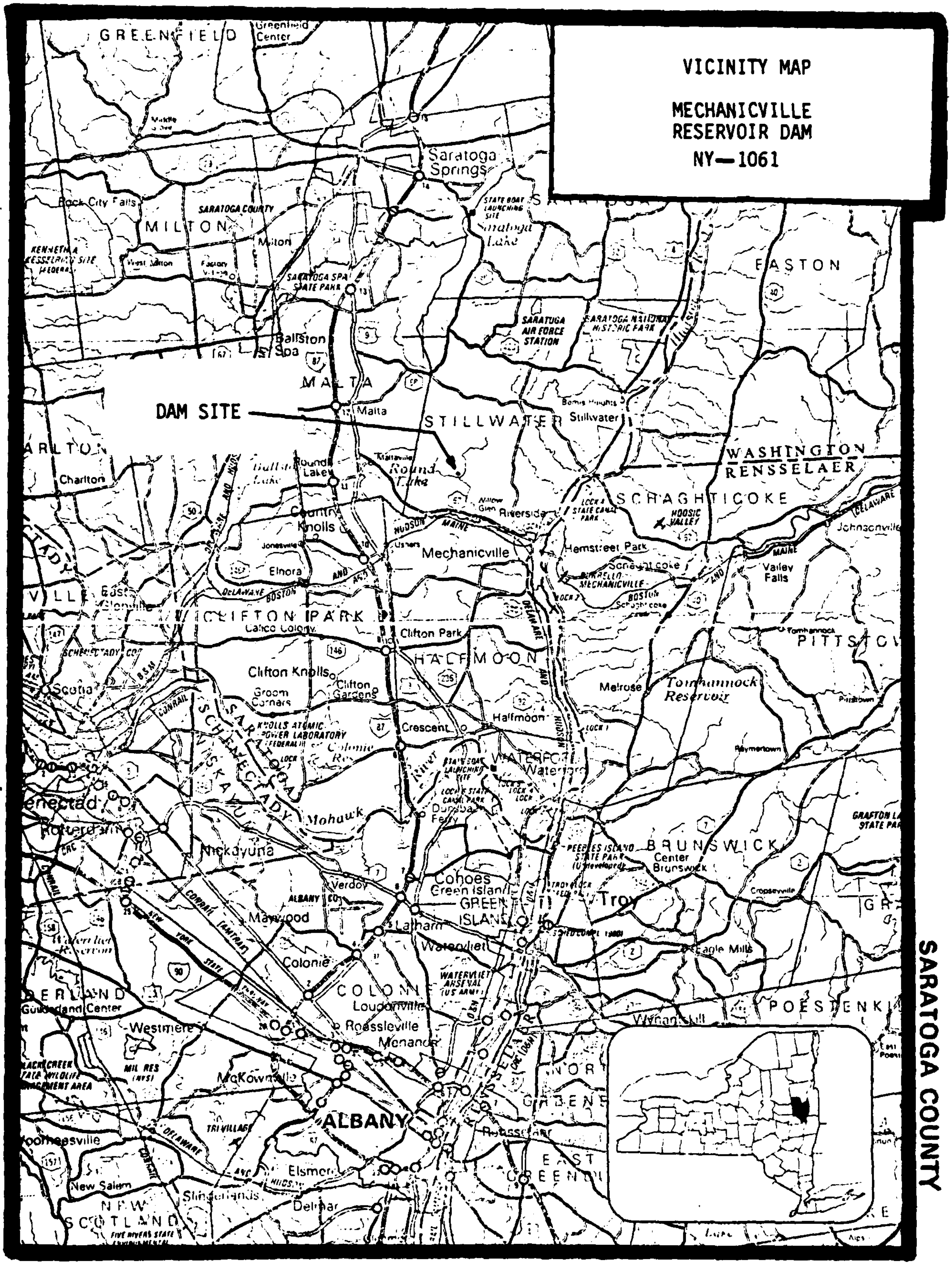
According to a report Clark prepared for the engineer of the Luther Forest development, the watershed tapped by the Maltaville wells is separate from the watershed that feeds the city's resorvoir. Clark said the well site has "a different watershed, a different aquifer, different everything."

Mackay said he withdrew the applications for the Stillwater section because "we realize there are problems there." He said the corporation "didn't have the money to spend" to solve the problems. It could be as long as seven years before the Stillwater section is begun, he said, depending on the success of the Malta section

Mayor John R. Fascia said he has "no objections to plans for Malta." But "our watersupply is our livelyhood," he said.

Mason Barber, city water superintendent, said the developer could build south of County Highway 75 and still not affect the watershed feeding the city resorvoir. Mackay replied he will "certainly talk to (city officials) if we go south of 75."

C-54


VICINITY MAP
MECHANICVILLE
RESERVOIR DAM
NY—1061
DAM SITE
SARATOGA COUNTY
GREENFIELD
Saratoga Springs
MILTON
Ballston Spa
MALTA
Malta
STILLWATER
Stillwater
EASTON
WASHINGTON
RENSSELAER
SCHAGHTICOKE
Round Lake
Mechanicville
CLIFTON PARK
Clifton Park
HALFMOON
Halfmoon
Crescent
Waterford
BRUNSWICK
Cohoes
Troy
Latham
Colonie
Loudonville
Menands
ALBANY
Rensselaer
Elsmere
Delmar
Slingerlands
New Salem
NEW SCOTLAND
Scotia
Niskayuna
Rotterdam
Westmere
McKownville
Guilderland Center
Melrose
Tomhannock Reservoir
Valley Falls
Johnsonville
Eagle Mills
Wynantskill
POESTENKILL